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MENTAL DISEASES

A Public Health Problem

BY

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WITH A PREFACE BY

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BOSTON

RICHARD G. BADGER

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PREFACE

Interest in mental disorders is no longer confined to the relatively small number of persons whose duties or family ties bring them into daily contact with the mentally ill. Disorders that so profoundly affect human conduct were certain, sooner or later, to attract the attention of those who are interested in the study of human behavior in its broadest relations or who have special responsibilities with reference to the conduct of individuals and require all the information that they can secure on factors that modify the reactions of men, women or children in the social environments in which they live and die. Uncertain of themselves until they made sure of the sciences upon which their future work was to develop, social workers since the commencement of organized social work in this country demanded of the sciences concerned with the human mind some information that might aid them in dealing with the difficult problems in human adaptation which they found constituted the chief part of social work. Judges and those who are interested in penology have within recent years turned also to the students of abnormal human behavior for light upon problems of crime and delinquency. With mental hygiene becoming firmly established as a practical field of preventive medicine, another group of persons not directly concerned with the care of the mentally ill has become deeply interested in the forms, types and causes of mental illness. It is by such readers, quite as much as physicians, medical students and nurses, that Dr. May's work in bringing together the main facts regarding mental diseases and the people who suffer from them will be appreciated. For those whose interest in the sub-

ject is incidental and not part of a life-long study, the information here presented will be of special value. There are, it is true, many technical works on mental diseases in their medical, social and legal relations, but it is doubtful whether elsewhere there can be found in a single volume as much varied information as that which Dr. May has brought together.

There is probably no group of diseases about which there is such widespread popular ignorance or misinformation as those that affect the mind. People who would be ashamed not to have accurate information regarding the more important infectious diseases and more than general knowledge of the means by which they are transmitted speak of "insanity" as if there were a single disorder to which that name could properly be applied, and are without the slightest knowledge of the different forms of mental diseases, the periods of life in which they appear, their main characteristics and the means by which they terminate. Statistics relating even to those persons with mental disorders who are cared for in special institutions are usually quite unfamiliar to persons who have more than an ordinary amount of information regarding the prevalence of other diseases. Such a book as this will go far toward supplying the extraordinary lack of knowledge of conditions that have exceedingly important social and economic relations and from the study of which many lessons can be drawn that are applicable to human affairs far removed from those relating to patients in our hospitals for the insane.

THOMAS W. SALMON.

Larchmont, New York,
January 11, 1922.

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AUTHOR'S PREFACE

In presenting a preliminary consideration of the subject of mental diseases as a public health problem the author is actuated by no other motive than that of stimulating the undertaking, at some future time, of a comprehensive investigation and survey of an important field which has never been systematically and adequately studied in the past. Under existing circumstances the facts necessary for an intelligent discussion of this question are unfortunately not obtainable. We have, as will be shown, practically no information whatever as to the incidence of mental diseases in the community. Hospital statistics are still in such a chaotic state that we are not even in a position to speak authoritatively of that part of the population which is entirely within our supervision and control in institutions. Before any progress can be hoped for we must at least have at our disposal accurate data relative to the patients within the walls of our hospitals. This presupposes a uniform scheme of statistical reports based upon some common viewpoint. Adequate preparations for this undertaking have been made by the American Psychiatric Association and the National Committee for Mental Hygiene. Every hospital for mental diseases in the country has been urged to cooperate in this movement. To show the necessity for more actively prosecuting this research has been one of the principal purposes of this book.

In elaborating somewhat briefly the conception of the various psychoses generally accepted by American psychiatrists, and for that reason included in the classification adopted by the Association, every effort has been

made, as far as possible, to show the steps which have led up to present developments. The author has endeavored to confine himself to reflecting the views of others throughout and has used actual quotations from recognized authorities as far as was deemed advisable. In the discussion of the various psychoses frequent references will be noted to the description of the various clinical groups contained in the manual prepared by the Committee on Statistics for the American Psychiatric Association. As is shown in the manual, these definitions and explanatory notes were formulated by Dr. George H. Kirby.

Special reference should be made to the important contributions to the literature of psychiatry of such well-known American writers as Meyer, Hoch, Kirby, White, Barrett, Campbell, Southard, Peterson, Diefendorf, Jelliffe, Paton, Salmon, Russell, Buckley, Rosanoff, Orton, Singer and many others. The work of Kraepelin, Bleuler, Nissl, Alzheimer, Freud, Jung, Stekel, Janet and others abroad has exercised an influence on the psychiatry of the day which must be recognized. We are very largely indebted to Pollock and to Furbush for the available information relating to the incidence of the various psychoses in this country. To the American Psychiatric, for many years the American Medico-Psychological, Association we owe an exhaustive historical review of the institutional care and treatment of mental diseases in the United States and Canada.

Obviously this work was not intended as a textbook, nor was it designed to serve the purpose of one. It is an appeal to those who are already familiar with the fundamental principles of psychiatry. For that reason the interpretation of mental mechanisms given so much space in textbooks has been entirely omitted and no reference is made to the treatment of the individual psychoses. Such reliable statistical data as could be

gathered from recent hospital reports and publications have been utilized in full. The following institutions were represented in this study:

1. MASSACHUSETTS—fourteen hospitals (1919-1920): Boston State Hospital, Boston; Bridgewater State Hospital, State Farm; Danvers State Hospital, Hathorne; Foxborough State Hospital, Foxborough; Gardner State Colony, Gardner; Grafton State Hospital, North Grafton; McLean Hospital, Waverley; Medfield State Hospital, Harding; Monson State Hospital, Palmer; Northampton State Hospital, Northampton; State Infirmary, Tewksbury (Mental Wards); Taunton State Hospital, Taunton; Westborough State Hospital, Westborough; Worcester State Hospital, Worcester.

2. NEW YORK—thirteen hospitals (1912-1919): Binghamton State Hospital, Binghamton; Brooklyn State Hospital, Brooklyn; Buffalo State Hospital, Buffalo; Central Islip State Hospital, Central Islip; Gowanda State Homeopathic Hospital, Collins; Hudson River State Hospital, Poughkeepsie; Kings Park State Hospital, Kings Park, L. I.; Manhattan State Hospital, Ward's Island, New York City; Middletown State Homeopathic Hospital, Middletown; Rochester State Hospital, Rochester; St. Lawrence State Hospital, Ogdensburg; Utica State Hospital, Utica; Willard State Hospital, Ovid.

3. Twenty-one hospitals in fourteen other states:

ARKANSAS—State Hospital for Nervous Diseases, Little Rock (1917-1918).

COLORADO—Colorado State Hospital, Pueblo (1917 and 1918).

CONNECTICUT—Connecticut State Hospital, Middletown (1917 and 1918); Norwich State Hospital, Norwich (1905-1918 inclusive).

MARYLAND—Springfield State Hospital, Sykesville, 1919; Spring Grove State Hospital, Catonsville, 1918 and 1919.

MICHIGAN—Pontiac State Hospital, Pontiac, 1917 and 1918; State Psychopathic Hospital, Ann Arbor, 1917 and 1918; Traverse City State Hospital, Traverse City, 1917 and 1918.

MONTANA—Montana State Hospital, Warm Springs, 1917 and 1918.

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New Jersey—Essex County Hospital, Overbrook, 1918.

Pennsylvania—State Hospital Southeastern District of Pennsylvania, Norristown, 1919.

South Carolina—South Carolina State Hospital, Columbia, 1918.

Utah—State Mental Hospital, Provo, 1918.

Vermont—Vermont State Hospital, Waterbury, 1917 and 1918.

Virginia—Central State Hospital, Petersburg, 1919; Western State Hospital, Staunton, 1919.

Washington—Eastern State Hospital, Medical Lake, 1917 and 1918; Northern State Hospital, Sedro Woolley, 1917 and 1918.

West Virginia—Spencer State Hospital, 1917 and 1918; Weston State Hospital, Weston, 1917 and 1918.

These institutions may, I think, be looked upon as fairly representative of the hospitals of this country. Based on their official reports an analysis has been made of over seventy thousand consecutive first admissions.

There is no disposition on the part of the writer to overestimate the value of statistical studies. Our conclusions should, however, be based as fully as possible on facts rather than on abstract theories or individual observations alone. The social, economic and clinical aspects of mental diseases must all be given adequate consideration if psychiatry is to fulfill its obligation to the community and assume a dignified rôle in the advancement of modern medicine.

James V. May.

Boston, Mass.,
December 15, 1921.

PART I

GENERAL CONSIDERATIONS

MENTAL DISEASES

CHAPTER I

THE SOCIAL AND ECONOMIC IMPORTANCE OF MENTAL DISEASES

The importance of mental diseases as a factor in the social and economic welfare of the community has not been given adequate consideration, notwithstanding the remarkable progress of modern psychiatry. Nor is this influence, unfortunately, one which can be easily estimated or accurately determined. We have, as a matter of fact, no data at hand to show the prevalence of disease, either physical or mental, with any degree of exactness even under our most elaborately organized forms of government. There is no complete information available which will enable us to determine the frequency of such important conditions as appendicitis, cardiac or renal diseases, peritonitis, septic infections, diseases of the eye, ear, skin or nervous system. It is true that there are, in the majority of states, records of contagious or readily communicable diseases which are probably fairly reliable. Aside from this, the only information at our disposal is confined to mortality statistics.

This suggests a further consideration of the advisability, if not absolute necessity, of more extensive statistical studies of diseases, both mental and physical, if the welfare of the community is to be safeguarded and the future of medical science assured. Every physician should be required by law to make careful reports to the Board of Health of his state showing all medical condi-

tions requiring treatment by him or coming to his professional notice. The value of such information to medical science would much more than compensate for the comparatively small cost of such an undertaking. Nor is this procedure more radical either in theory or practice than was the proposal to report all communicable diseases only a few years since. The data thus made available in the various states should be correlated and published by the Public Health Service.

The mortality statistics of the United States Census Bureau furnish us with a valuable index of the relative frequency of the various disease processes which determine the death rate of the community. They are based on the transcripts of death certificates received from the so-called registration area, which in 1920 had an estimated population of 87,486,713. The total number of deaths reported in 1920 was 1,142,558, a rate of 13.1 per 1,000 of the population. It is true that the epidemic of influenza was still a factor of some importance at that time. The rate for 1916, however, was fourteen, for 1917 fourteen and two-tenths, for 1918 eighteen and one-tenth and for 1919 twelve and nine-tenths per 1,000 of the population. The registration area now includes thirty-four states:—California, Colorado, Connecticut, Delaware, Florida, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington and Wisconsin. It is interesting, at least, to note the states not included in the registration area:—Alabama, Arkansas, Arizona, Georgia, Idaho, Iowa, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, West Virginia and Wyoming. The results obtained from a study of the reports from such an extensive district

must be looked upon as thoroughly representative of the country at large. The last complete statistics available are those for 1920. Influenza was still an important factor at that time, it being responsible for a death rate of 71 per 100,000. The influenza rate was 98.8 in 1919, 302.1 in 1918, 17.3 in 1917, 26.5 in 1916, 16 in 1915, 9.1 in 1914 and 10.3 in 1912.

The important causes of death in 1920 were as follows:

	Rate per 100,000	*Percentage*
Typhoid fever	7.8	.6
Malaria	3.6	.3
Measles	8.8	.7
Whooping cough	12.5	1.0
Diphtheria and croup	15.3	1.2
Influenza	71.0	5.4
Tuberculosis of the lungs	100.8	7.7
Other forms of tuberculosis	7.8	.6
Cancer and other malignant tumors	83.4	6.4
Simple meningitis	6.0	.5
Cerebral hemorrhage	80.9	6.2
Organic diseases of the heart	141.9	10.9
Bronchitis	13.3	1.0
Pneumonia (all forms)	137.3	10.5
Other diseases of the respiratory system (tuberculosis and pneumonia excepted)	11.6	.9
Appendicitis and typhlitis	13.4	1.0
Hernia, intestinal obstruction	10.6	.8
Cirrhosis of the liver	7.1	.5
Acute nephritis and Bright's disease	89.4	6.8
Puerperal septicaemia	6.6	.5
Other puerperal accidents of pregnancy and labor	12.5	1.0
Congenital debility and malformation	69.8	5.3
Violent deaths (suicide excepted)	78.5	6.0
Suicide	10.2	.8
Unknown or ill-defined diseases	17.7	1.4

The penumonia rate (all forms) for 1920 was quite unusual, 137.3 per 100,000, as compared with 123.5 in 1919, 286.6 in 1918, 150.5 in 1917, 137.8 in 1916, 133.1 in 1915, 127.3 in 1914, 132.6 in 1913, 132.4 in 1912, etc.

The following table shows the average rate per 100,000 of some of the more important general diseases during a period of eight years (1912, 1913, 1914, 1915, 1916, 1917, 1918 and 1919):

Typhoid fever	13.86
Measles	9.01
Scarlet fever	4.87
Whooping cough	10.11
Diphtheria and croup	16.30
Tuberculosis (all forms)	144.52
Cancer and other malignant tumors	80.27
Cerebral hemorrhage, apoplexy	78.91
Acute endocarditis and organic diseases of the heart	153.65
Pneumonia (all forms)	152.98
Acute nephritis and Bright's disease	101.63

The death rate from diseases of the nervous system is of particular interest. The average annual rate per 100,000 of the population for the years 1916, 1917, 1918 and 1919 was as follows:

Encephalitis	1.0
Meningitis (total)	8.17
Locomotor ataxia	2.27
Other diseases of the spinal cord (total)	8.57
Cerebral hemorrhage, apoplexy	80.57
Softening of the brain	1.25
Paralysis without specified cause	7.65
General paralysis of the insane	6.77
Other forms of mental alienation	2.17
Epilepsy	4.07
Chorea	.10
Other diseases of the nervous system	3.85

This shows a total death rate for nervous and mental diseases of 126.44 per 100,000. It is a fairly reasonable assumption that of the above, the following, at least, may be classified as having been definitely associated with psychoses:

	Rate per 100,000
Encephalitis	1.0
Meningitis	8.17
Softening of the brain	1.25
General paralysis of the insane	6.77
Other forms of mental alienation	2.17

We may, therefore, reasonably conclude that there was an average number of at least 19.36 per 100,000 (from 1906 to 1910 this amounted to 32.1) in which the primary cause of death was associated with mental diseases, an exceedingly conservative estimate. This does not take into consideration the deaths due to senility

(15.5) or suicide (12.8), conditions which might very logically be included for obvious reasons. It is, of course, well known that the psychoses rarely, if ever, appear in the death certificates as a primary cause of death. As a matter of fact, they are not always shown in the secondary causes. Information on this subject is still less satisfactory from a statistical point of view. During the year 1917 (contributory causes have not been reported since that year) there was a total of 1,066,711 primary causes of death shown in the registration area and only 372,291 contributory causes. Of this number the following may be classified as having been associated with psychoses:

Disease	*Primary Cause*	*Contributory Cause*
Encephalitis	620	904
Meningitis (total)	6,673	6,815
Softening of the brain	888	722
General paralysis of the insane	5,248	648
Other forms of mental alienation	1,651	3,895
Total	15,080	12,987

The contributory causes definitely showing mental diseases constitute only 3.4 per cent of the whole number, and the death rate for 1917, including both primary and contributory causes suggestive of probable psychoses, was 37.2 per 100,000. This would indicate that the number of deaths from mental diseases shown in the primary causes represents only about fifty-three per cent of all mental cases which are actual factors in determining the death rate of the community. A comparison of these figures with the number of cases dying in hospitals shows that they cannot be looked upon as determining the percentage of the general population showing psychoses. Of the 1,952 persons dying in the institutions for mental diseases in Massachusetts in 1919, approximately nineteen per cent showed the psychoses in the primary causes of death. This percentage would probably be fairly con-

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stant throughout the country. It is, of course, a well recognized fact that the death certificate at best is not beyond suspicion and does not furnish information regarding the cause of death which can be accepted without question.

Dr. Richard C. Cabot[1] has made an elaborate study of errors in diagnosis as shown by autopsies. His work shows the following percentage of diagnostic accuracy:

	Per cent.
Diabetes mellitus	95
Typhoid fever	92
Aortic regurgitation	84
Lobar pneumonia	74
Cerebral tumor	72.8
Tubercular meningitis	72
Gastric cancer	72
Mitral stenosis	69
Brain hemorrhage	67
Aortic stenosis	61
Phthisis, active	59
Miliary tuberculosis	52
Chronic interstitial nephritis	50
Hepatic cirrhosis	39
Acute endocarditis	39
Bronchopneumonia	33
Acute nephritis	16

It must be admitted that Cabot's findings are discouraging. They are not so bad as they would seem, however, at first thought. Death certificates, unfortunately, do not have the significance which they should have. Physicians are well known to be entirely too careless in their preparation and inclined to look upon them merely as legal formalities which cannot readily be avoided. It is furthermore difficult, as every doctor knows, to point to one immediate primary cause of death in every instance. Very often there is a combination of factors concerned and it is possible at practically every autopsy to find lesions not represented in any way whatever in the death certificate. It is unquestionably true that statistics of

1. Cabot, Richard C.: Diagnostic Pitfalls Identified During a Study of 3000 Autopsies. Journal of the American Medical Association. December 28, 1912.

any kind must be based on information some of which we know to be inaccurate. This should not be used as an argument for discontinuing, absolutely, our search for knowledge. It is merely a reason why our clinical standards should be improved.

An exceedingly important contribution to our rather limited fund of accurate information regarding the general health of the country was the publication recently issued by the Metropolitan Life Insurance Company [2] on the mortality statistics of wage earners and their families. This covers a period of six years (1911 to 1916) and represents a study of 635,449 deaths. The cases reported came from every state in the union with the following exceptions: Mississippi, North Dakota, South Dakota, Wyoming, Colorado, Texas, Nevada, Arizona and New Mexico. Canada and many other localities outside of the "Registration Area" of the United States Census Bureau were included. The facts presented in this report are unique in that they render available for the first time a careful and detailed consideration of the diseases which may be looked upon as representative of the industrial population of the country. The various occupations shown in the order of their numerical importance were as follows:—Laborers, teamsters, drivers and chauffeurs, machinists, textile mill operatives, clerks, office assistants, etc. It covers a study of ten million policy holders and nearly fifty-four million years of life in the aggregate. The age groups studied range from one year to seventy-five in ratios not very different from those exhibited in the general population. The death rate for all persons exposed was 11.81 per 1,000 as compared with a rate of over thirteen per 1,000 (white) of the general population of the registration area during the same period of time. The death

2. Dublin, Louis I.: Mortality Statistics of Insured Wage Earners and Their Families. 1919.

rate per 100,000 from 1911 to 1916 of some of the more important general diseases was as follows:

Typhoid fever	16.8	Measles	8.9
Diphtheria and croup	24.3	Influenza	15.0
Scarlet fever	8.6	Tuberculosis (all forms)	205.1
Acute articular rheumatism	6.3	Tuberculosis (pulmonary)	173.9
Diabetes	14.4	Alcoholism	4.7
Cancer and other malignant tumors	70.0	Diseases of the arteries, including atheroma, aneurysm, etc.	17.0
Bronchopneumonia	30.2	Pneumonia (lobar and undefined)	77.5
Diarrhea and enteritis (over two years old)	13.9	Intestinal obstruction	5.9
Cirrhosis of the liver	15.0	Bright's disease	96.8
Puerperal septicemia	8.1	Suicide	12.2
Accidents of all forms	75.1	Homicide	7.0
Ill-defined diseases	10.1		

The death rate for syphilis, locomotor ataxia and general paralysis of the insane, combined, was 14.3 per 100,000. The percentage of deaths due to diseases of the nervous system, many of which must be looked upon as probably having been associated with mental disturbances, is somewhat surprising, as shown by the following table:

Encephalitis	1.0
Meningitis	7.8
Locomotor ataxia	1.5
Acute anterior poliomyelitis	3.5
Other diseases of the spinal cord	4.0
Cerebral hemorrhage (apoplexy)	68.1
Softening of the brain	.9
Paralysis without specified cause	5.2
General paralysis of the insane	4.1
Other forms of mental alienation	1.4
Epilepsy	3.5
Convulsions (non-puerperal)	.2
Chorea	.2
Neuralgia and neuritis	.6
Other diseases of the nervous system	2.5

This shows a total rate of 104.5 per 100,000 due to diseases of the nervous system. If to this we add those dying of senility and the suicides as probably representing psychoses it would bring the total up to 123.2 per 100,000. It must be confessed, however, that such speculations mean comparatively little.

Practically the only other source of information at

our disposal relative to the incidence of general diseases in the community is the tabulation of communicable diseases by Boards of Heath. The annual report of the United States Public Health Service for 1919 shows a case rate for diphtheria of 137 per 100,000 of the population based on the reports of thirty-seven states. The case rate for measles in thirty-seven states was 170. Poliomyelitis in thirty states showed a rate of 2.5 and scarlet fever a rate of 110 in thirty-seven states. The smallpox rate was sixty-eight and represented thirty-six states. The typhoid fever rate for thirty-seven states was only forty. The case rate for tuberculosis, all forms, was 346.7 in 1918. It was 274.2 in New York, 271.6 in the District of Columbia and 271.3 in New Jersey. These were the highest reported in the United States during that year. Unfortunately these statistics relate to communicable diseases only. This difficulty is due largely to the fact that comparatively few states have made attempts to keep elaborate records. The reports of Massachusetts are probably as comprehensive as any. The case rate per 100,000 of the population of all reportable diseases during the year 1920 was as follows:

Influenza	938.5
Measles	830.7
Pneumonia, lobar	143.6
German measles	12.5
Pulmonary tuberculosis	173.1
Tuberculosis, other forms	20.7
Diphtheria	194.2
Gonorrhea	186.7
Whooping cough	258.3
Scarlet fever	265.2
Chicken pox	138.4
Mumps	154.1
Syphilis	77.2
Ophthalmia	42.3
Typhoid fever	24.2
Dysentery	1.0
Epidemic cerebrospinal meningitis	4.7
Malaria	1.6
Pellagra	.4
Smallpox	.7
Trachoma	2.2

The case rates for influenza and pneumonia cannot be looked upon as representative, owing to the epidemic of 1919 and 1920. During 1917 the death rate from influenza was 12.9 per 100,000 and from pneumonia 163.8. The death rate from heart diseases (organic diseases of the heart and endocarditis) in Massachusetts in 1920 was 178 per 100,000 of the population, from apoplexy 108.4, cancer and other malignant diseases 116.7, Bright's disease and nephritis 92.4, diarrhea and enteritis 52.9, violence 76.3, automobile accidents and injuries 11.9 and suicides 10.1.

It must be admitted that it is exceedingly difficult to establish a definite basis for a comparison of our statistics relating to mental disorders and those dealing with the frequency of other diseases in the community. As has been shown, our information on the latter subject, such as it is, has to do only with communicable diseases and the reported death rates. In making an analysis of the reports of mental diseases we are limited almost entirely to the institution population. It is true that these statistics are much more reliable than the others, as we are dealing with a stable population entirely under control. The cases, furthermore, are almost invariably subject to a prolonged observation and careful study. The diagnosis in almost every instance is based on elaborate mental examinations and exhaustive personal and family histories. It is, of course, true that there are innumerable cases of mental diseases outside of institutions. There were 18,268 patients at home on visit from the state hospitals alone on January 1, 1920. Those not requiring hospital treatment or custody in an institution can, however, be eliminated for the purpose of comparative studies. The fact that an analysis of death rates alone does not throw any light whatever on the frequence of psychoses for reasons already given will, I

think, be conceded. For statistical purposes, at least, it may be assumed that the frequence of mental diseases as shown by a study of the hospital population is fairly representative of conditions existing in the community.

For purposes of comparison we may contrast the admission rate of mental diseases per 100,000 of the population in Massachusetts in 1920 with the case rate of communicable diseases as follows:

Mental diseases	101.7
Chicken pox	138.4
Diphtheria	194.2
German measles	12.5
Gonorrhea	186.7
Measles	830.7
Mumps	154.1
Scarlet fever	265.2
Syphilis	77.2
Tuberculosis, pulmonary	173.1
Tuberculosis, other forms	20.7
Typhoid fever	24.2
Whooping cough	258.3

The total institution population (mental cases) at the end of the year 1920 represented a rate of 395.49 per 100,000 of the population. It should be borne in mind that, with the exception of tuberculosis and syphilis, the communicable diseases reported above represent, as a rule, the total number of cases in the state during the year. Comparative studies should, therefore, be based not on the number of mental cases in the hospitals at any one given time, but on the total number under treatment during the year. This would indicate *an incidence of mental diseases of 566.98 per 100,000 of the population.*

On January 1, 1916, there were 147 state and federal institutions for the care and treatment of mental diseases in the United States, as shown by the Census Bureau reports. There were at this same time twenty-seven institutions for the feeble-minded, nine for epileptics, three for inebriates, forty-five for tuberculosis, twenty-eight for the blind, thirty-three for the deaf,

twelve for the blind and deaf and eighty-four for the dependent classes.[3]

The appropriations for the maintenance of these institutions for 1915 amounted to $33,557,058.29. This constituted 7.6 per cent of the appropriations made by those states for all purposes. In Massachusetts it represented 14.8 per cent, in New Hampshire 10.1, in New York 12.7, in Ohio 12, in Indiana 10.7, in Illinois 13.4, and in a number of other states over ten per cent of the appropriations for all purposes. It was equivalent to an average of $431.16 per million of the total assessed valuation of these states. In Massachusetts it was as high as $653.62 and in New York $567.37. This means thirty-three cents per capita for all states, eighty-four cents for Massachusetts and sixty-eight cents for New York.

The actual expenditure for the maintenance of these institutions was $36,312,662.20. For purposes of comparison, attention should be called to the fact that the maintenance of the tuberculosis hospitals of the United States for the same year cost $3,539,454.95, institutions for criminals $21,244,892.00, for the feebleminded $3,341,442.85, for epileptics $1,345,821.57, for the blind $1,066,973.14, for the deaf $1,893,490.09 and for the dependent classes $9,675,932.37.

The value of the property invested in the state and federal hospitals for mental diseases in 1916 was estimated at $187,028,728.00. The valuation of these institutions per 100,000 of the population was $184,795.81. This does not include establishments for mental defectives. The average value per patient was $938.43. In Massachusetts it was $1,097.85 and in New York $1,039.85. In Arkansas it was as high as $2,264.00. The total acreage of land was 109,503.2, an average of 744.9 acres per hos-

3. Statistical Directory of State Institutions, Department of Commerce, Bureau of the Census, 1919.

pital. There were 33,124 persons employed, an average of 226.9 for each institution. This represented one employee for every six patients.

The census taken by the National Committee for Mental Hygiene[4] in 1920 shows 156 state hospitals for mental diseases, two federal institutions, 125 county or city hospitals and twenty-one institutions of a temporary care type. In the public and private hospitals for mental diseases on January 1, 1920, there were 232,680 patients under treatment. Of these, 200,109 were in public and 9,238 in private hospitals. This represented an increase of 8,723 in two years. It is interesting to note that city and county institutions cared for 21,584 persons.

The first authoritative information relative to the institution care of mental diseases was obtained from the federal census reports of 1880. In that year there were 40,942 patients in the public hospitals. In 1890 there were 74,028; in 1904, 150,151; in 1910, 187,791; in 1917, 232,873 and in 1918, 239,820. The rate per 100,000 of the population increased from 81.6 in 1880 to 229.6 in 1918. From 1910 to 1918 the general population increased 13.6 per cent and the hospital population 27.7 per cent. The rate per 100,000 of the population in institutions in Massachusetts[5] on January 1, 1920, was 373.8, in New York 374.6, in Connecticut 317.8, in Iowa 248.1, in Wisconsin 300.6, in California 297.2, in Pennsylvania 215.2, in Ohio 212.1, in Illinois 229.5 and in Michigan 210.8. The admission rate per 100,000 of the population in 1917 was 151.6 in Massachusetts, 109.2 in Illinois, 124.8 in Montana, 97.3 in New York, 80.9 in Connecticut and 85.7 in California.

4. Pollock, Horatio M., and Furbush, Edith M.: Patients with Mental Disease, Mental Defects, etc., in Institutions of the United States. Mental Hygiene, January, 1921.

5. Ibid.

The cost of maintenance in the state hospitals increased to $43,926,888.88 in 1917 with an average per capita cost of $207.28. The number of cases cared for in some of the more populous states is of interest. On January 1, 1920, the institution population of New York was 38,903, Pennsylvania 18,764, Ohio 12,217, Illinois 14,884, Massachusetts 14,399 and California 10,184.

Based on the estimated population of Massachusetts on July 1, 1920 (3,869,098), the 1,475 deaths in institutions for mental diseases would represent a death rate of 38.12 per 100,000 of the population. The death rate for other diseases for that year was: diphtheria 15.4, measles 9.0, pulmonary tuberculosis 96.7, typhoid fever 2.5, whooping cough 14.0, scarlet fever 5.5, syphilis 5.8, lobar pneumonia 71.9 and influenza 43.9. The importance to be attached, however, to such comparisons is very uncertain at best. From the standpoint of social and economic importance to the community there is another factor under consideration which should not be overlooked. The duration of other diseases, as a general rule, is comparatively short. A study of over ten thousand deaths in New York state hospitals for mental diseases shows the average hospital residence of these cases to have been over six years. At the rate of admission to public institutions for 1917 (62,898) and the average per capita cost for that year ($207.28) the care of persons admitted annually, during their years of hospital life, would mean an expenditure of over seventy-eight millions of dollars.

If we figured the earning capacity of the 62,000 persons admitted to institutions for mental diseases in the United States as averaging only one thousand dollars per year, it would represent an economic loss to the country of sixty-two millions of dollars annually. Estimated in the same way, the total population of the hospitals would represent the staggering sum of nearly two hun-

dred and forty million dollars. This, of course, does not take into consideration at all the cost of maintenance or the property investment represented by hospitals.

To avoid any possibility of confusion, no reference has been made heretofore to statistical studies of mental deficiency or epilepsy. From a public health point of view, however, and as social and economic problems, they are questions which cannot be disregarded in a consideration of mental diseases. As a matter of fact, they are very closely correlated in many ways. A survey made by the National Committee for Mental Hygiene shows that on January 1, 1920, there were in this country thirty-two state institutions for mental defectives, eleven admitting both feebleminded and epileptics and twenty exclusively for the latter class.[6] In addition to this, one city institution was reported. Of the private hospitals twenty-seven care for the feebleminded only, and six for epileptics, while nineteen admit either of these classes. The total number of mental defectives in institutions on January 1, 1920, was 40,519. At that time 34,836 were in state, 2,732 in other public institutions and 2,951 in private hospitals. In the following states they are cared for in hospitals for mental diseases, no other provisions having been made for their treatment:—Alabama, Arizona, Arkansas, Florida, Louisiana, Mississippi, Nevada, South Carolina, Tennessee, Utah and West Virgina. The states reporting the largest number are New York 5,762, Pennsylvania 4,281, Massachusetts 3,192, Illinois 3,147, Ohio 2,435, Michigan 1,849, Iowa 1,704, New Jersey 1,762, Wisconsin 1,624, Minnesota 1,502, Indiana 1,264 and Missouri 1,047. At the same time there were 14,937 epileptics under treatment, 13,223 in state, 859 in other public institutions and 855 in pri-

6. Pollock, Horatio M., and Furbush, Edith M.: Patients with Mental Disease, Mental Defects, etc., in Institutions of the United States. Mental Hygiene, January, 1921.

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vate hospitals. Colorado, Delaware, Georgia, Nebraska, New Mexico and Washington take care of the epileptics in their hospitals for mental diseases. The intimate relation between mental diseases and epilepsy is shown by the fact that as nearly as can be determined at this time approximately thirty per cent of all of the epileptics in our state institutions have been committed as insane. This, however, nowhere nearly includes all of the cases which actually show mental disorders of one kind or another. The states showing the largest numbers of epileptics are New York with 1,683, Ohio 1,680 and Massachusetts 1,227. No other states report over one thousand, although Michigan and Pennsylvania have over eight hundred and Illinois and Missouri over seven hundred.

Although the incidence of mental as compared with other diseases prevalent in the community cannot be established with absolute accuracy, sufficient evidence has been presented to warrant the statement that from the standpoint of the public health we are dealing with no other problem of equal importance today. The state care of mental defects, epilepsy, tuberculosis and the deaf, dumb and blind is, for various reasons, of much less consequence to the community than the hospital treatment of mental diseases. The defective, delinquent, criminal and dependent classes combined do not equal in number the population housed in our state hospitals for mental diseases. Nor does the number of cases cared for in the general hospitals of the state, county or municipal type compare in any way with the mental cases coming under state or federal supervision. It can, I think, be said without any fear of contradiction that no other disease or group of diseases is of equal importance from a social or economic point of view. Perhaps nothing emphasizes this fact more strongly than the report recently issued from the Surgeon General's

office relative to the second examination of the first million recruits drafted in 1917. Twelve per cent of these were rejected on account of nervous or mental diseases. The number disqualified for service finally reached a total of over sixty-seven thousand.

Mental integrity is now looked upon as a military necessity and is insisted upon as one of the important requirements of the soldier. It has been demonstrated conclusively that only men of the most stable mental equilibrium can withstand the stress and strain of modern methods of warfare. Nor are peacetime requirements any less exacting. In commercial competition the law of the survival of the fittest is practically absolute. The feebleminded often inherit wealth, but they rarely acquire it. Vaccination for the prevention of smallpox is compulsory and the isolation of communicable diseases dangerous to the public welfare is rigidly enforced. At the same time we allow many paranoics the freedom of the country and they occasionally assassinate a President. Psychopaths are not infrequently elected to public office and epileptics are not disqualified from driving high-powered and dangerous motor vehicles. The engineers of our fastest trains must not be color blind, but they occasionally are victims of the most fatal of all mental diseases,—general paresis. The navigating officer of a transatlantic liner, responsible for the lives of hundreds of passengers, must pass an examination for a license, but he may be dominated by delusions which escape observation because they are not looked for. Important trials, where human lives were at stake, have been presided over by insane judges. Army officers in command of troops in time of war have been influenced by imaginary voices. Insurance companies issue large policies to individuals suffering from incipient mental diseases which could be detected by even a superficial psychiatric examination.

Serious consideration should be given to the advisability of subjecting to a careful mental examination such persons, at least, as are to be charged with an entire responsibility for the lives of others. It is a question as to whether this procedure is not indicated in the case of other important public trusts where the interest of the community should be safeguarded.

The correlation of psychiatry and psychology as scientific aids to industrial efficiency promises to open up entirely new and important sociological fields of research which have only recently attracted attention.[7] This is a subject of far reaching importance. The extent to which the industrial classes of the country are affected is shown by the following analysis of the occupations represented by 104,013 admissions to New York state hospitals: 1. Professional—(clergy, military and naval officers, physicians, lawyers, architects, artists, authors, civil engineers, surveyors, etc.) 1,926 or 1.8 per cent; 2. Commercial—(bankers, merchants, accountants, clerks, salesmen, shopkeepers, shopmen, stenographers, typewriters, etc.) 7,572 or 7.2 per cent; 3. Agricultural—(farmers, gardeners, etc.) 5,942 or 5.7 per cent; 4. Mechanics—at Outdoor Vocations—(blacksmiths, carpenters, enginefitters, sawyers, painters, etc.) 8,564 or 8.2 per cent; 5. Mechanics at Sedentary Vocations—(bootmakers, bookbinders, compositors, tailors, weavers, bakers, etc.) 7,501 or 7.2 per cent; 6. Domestic Service—(waiters, cooks, servants, etc.) 21,037 or 20.2 per cent; 7. Educational and Higher Domestic Duties—(governesses, teachers, students, housekeepers, nurses, etc.) 21,861 or 21 per cent; 8. Commercial—(shopkeepers, saleswomen, stenographers, typewriters, etc.) 1,140 or 1.09 per cent; 9. Employed at Sedentary Occupations—

7. Ball, Jau Don: The Correlation of Neurology, Psychiatry, Psychology and General Medicine as Scientific Aids to Industrial Efficiency. The American Journal of Insanity, April, 1919.

(tailoresses, seamstresses, bookbinders, factory workers, etc.) 4,310 or 4.1 per cent; 10. Miners, Seamen, etc., 581 or .56 per cent; 11. Prostitutes, 81 or .08 per cent; 12. Laborers, 12,962 or 12.4 per cent; No occupation, 7,820 or 7.5 per cent; Unascertained, 2,715 or 2.6 per cent.[8] This certainly indicates an enormous economic loss to the community.

The intimate relation between mental diseases, alcoholism, ignorance, poverty, prostitution, criminality, mental defects, etc., suggests social and economic problems of far reaching importance, each one meriting separate and special consideration. These problems, while perhaps essentially sociological in origin, have at the same time an important educational bearing, invade the realm of psychology and depend largely, if not entirely, upon psychiatry for a solution.

8. Nineteenth Annual Report of the State Commission in Lunacy, N. Y., 1908.

CHAPTER II

THE EVOLUTION OF THE MODERN HOSPITAL

The medical treatment of mental diseases had its inception, in this country, in the wards of the Philadelphia Hospital, established in 1732 and referred to officially for over a century as an almshouse. It included an infirmary for the "sick and insane," although it apparently had no distinct and separate hospital department for many years. "In 1742," to use the words of Dr. D. Hayes Agnew, "it was fulfilling a varied routine of beneficent functions in affording shelter, support and employment for the poor and indigent, a hospital for the sick, and an asylum for the idiotic, the insane and the orphan. It was dispensing its acts of mercy and blessing when Pennsylvania was yet a province and her inhabitants the loyal subjects of Great Britain." In 1772 it housed as many as three hundred and fifty persons. In 1769 the General Assembly passed an act authorizing the "Managers of the Contributions for the Relief and Employment of the Poor," who had charge of the almshouse, to issue bills of credit for the purpose of relieving their indebtedness. This paper currency was issued in three denominations—one shilling, two shillings and a half crown. The law provided that counterfeiters or persons altering the denomination of these bills should be "sentenced to the pillory, have both his or her ears cut off and nailed to the pillory and be publicly whipped on his or her back with thirty-nine lashes, well laid on, and, moreover, every such offender shall forfeit the sum of one hundred pounds, to be levied on his or her land, tene-

ments, goods and chattels"[1] This certainly must have discouraged counterfeiting. It was not until after the institution was removed to the Hamilton estate in Blockley (now a part of West Philadelphia) in 1834 that it came to be known as the "Philadelphia Hospital and Almshouse," although there was no change made in its organization or functions. In 1902, after one hundred and seventy years of continuous existence, it was finally divided officially for administrative purposes into The Philadelphia Home or Hospital for the Indigent, The Philadelphia General Hospital and The Philadelphia Hospital for the Insane. At that time the hospital was, as it is today, the largest on the American continent. The institution, which has admitted mental cases uninterruptedly since 1732, had over seventeen hundred patients in the department for the insane. In 1917 this number had increased to nearly three thousand.

One of the reasons set forth by sundry petitioners in 1751 for a "small Provincial Hospital" in Philadelphia, which at that time had made provision for the care of indigent cases only, was "THAT with the Numbers of People, the Number of Lunaticks or Persons distempered in Mind and deprived of their rational Faculties, hath greatly encreased in this Province. That some of them going at large are a Terror to their Neighbours, who are daily apprehensive of the Violences they may commit; And others are continually wasting their Substance, to the great Injury of themselves and Families, ill disposed Persons wickedly taking Advantage of their unhappy Condition, and drawing them into unreasonable Bargains, etc. That few or none of them are so sensible of their Condition, as to submit voluntarily to the Treatment their respective Cases require, and therefore continue in the same deplorable State during their Lives;

1. Curtin, Roland G.: The Philadelphia General Hospital. Philadelphia General Hospital Reports Vol. VIII, 1910.

whereas it has been found, by the Experience of many Years, that above two Thirds of the Mad People received into Bethlehem Hospital, and there treated properly, have been perfectly cured."[2] This resulted eventually in the opening of the Pennsylvania Hospital in 1752. This institution is a general hospital supported by private funds and has always received mental cases. A separate department for mental diseases was established in West Philadelphia in 1841. Before this was done considerable difficulty was experienced on account of the annoyance of the patients by curious-minded citizens of the neighborhood. This developed into such a nuisance in 1760 that it was suggested "That a suitable Pallisade Fence, either of Iron or Wood, the Iron being preferred, shall be erected in Order to prevent the Disturbance which is given to the Lunatics confined in the Cells by the great Number of People who frequently resort and converse with them."[3] It was also deemed advisable to employ "Two Constables or other proper Persons, to attend at such times as are necessary to prevent this Inconvenience until ye Fence is erected." The public was notified later "that such persons who come out of curiosity to visit the house should pay a sum of money, a Groat at least, for admittance."[4] The Pennsylvania Hospital has played a very important part in the history of the care and treatment of mental diseases in this country. In 1919 it had over three hundred patients.

The first institution designed and used exclusively for mental diseases in this country was the Eastern State Hospital at Williamsburg, Virginia. It was incorporated by the House of Burgesses in 1768 and opened for pa-

2. The Institutional Care of the Insane in the United States and Canada, Vol. III, 1916.
3. Ibid.
4. Ibid.

tients on October 12, 1773. It is interesting to note that the act of incorporation, except in the title, makes no use of the word lunatic, refers frequently to the care and treatment of the patients, authorizes the appointment of physicians and nurses, and specifically designates the institution as a hospital and not an asylum. The original building was one hundred feet long by thirty-two feet two inches wide. During the first year thirty-six patients were admitted. The first pay patient was received in 1774 at a rate of fifteen pounds per annum. An allowance of twenty-five pounds per year was made by the legislature for the maintenance and support of each person admitted. Visiting physicians prescribed for the patients, and the "keepers" for the first few years were not graduates in medicine. The superintendents were, however, physicians after 1841. Known for many years as the "Publick Hospital," the legislature made the mistake of changing this designation to The Eastern Lunatic Asylum in 1841 and it was not until 1894 that it again officially became a hospital. Virginia opened its second institution, The Western State Hospital for the Insane, at Staunton on July 25, 1828. Its third hospital was opened at Weston on September 9, 1859. Virginia is thus entitled to the credit of being the first commonwealth to furnish state care for mental cases and make adequate provision for them.

The next step in the evolution of hospital treatment of mental diseases was taken by Maryland in incorporating a hospital for "The Relief of Indigent Sick Persons and for the Reception and Care of Lunatics" in 1797. The hospital was formally opened in 1798 under the management of the city of Baltimore, which leased the establishment in 1808 to two physicians, who conducted it as a private institution until 1834. It then reverted to the state and was operated as the Maryland Hospital. The institution was removed to Catonsville in 1872 and is

now known as the Spring Grove State Hospital, the Johns Hopkins Hospital occupying the site of the original building in Baltimore. Another interesting event in the history of this institution was the founding of what subsequently became the Mount Hope Retreat by the Sisters of Charity, who withdrew from the Maryland Hospital in 1840.

The earliest hospital care of mental diseases in New York was in the wards of the New York Hospital which was opened in 1791. A separate building for mental cases was ready for the reception of patients in 1808. The total number of cases treated up to July 1820 was 1,553. The Bloomingdale Asylum replaced this in 1821, on a piece of property which now belongs in part to Columbia University. Public patients were cared for at the expense of the state until the opening of the New York City Asylum in 1839. Church services were inaugurated in 1819. The hospital buildings furnished accommodations for about three hundred patients. In 1894 the property on Bloomingdale Road was abandoned and the hospital removed to White Plains in Westchester County. It is still known as the Bloomingdale Hospital and is supported entirely by public contributions and the income derived from the care of patients. It has about three hundred and fifty beds.

The activities of the "Religious Society of Friends," which were indirectly responsible probably for the inception of the Pennsylvania Hospital, ultimately led to the establishment of the Friends' Asylum for the Insane at Frankford, Pennsylvania, in 1817. It was under sectarian control until 1834, when its doors were thrown open to all, without regard to religious belief. It claims to be the first institution "erected on this side of the Atlantic in which a chain was never used for the confinement of a patient."[5] The hospital is still in a flour-

5. Friends' Asylum for the Insane, Frankford, Pa. Annual Report, 1853.

ishing condition and has accommodations for over two hundred patients.

Massachusetts at the beginning of the nineteenth century had no hospitals of any kind. In 1764, on the death of Thomas Handcock, it was found that provision had been made in his will for the establishment of a hospital for mental diseases in Boston. An expenditure of six hundred pounds was authorized for the purpose of "erecting and furnishing a convenient House for the reception and more comfortable keeping of such unhappy persons as it shall please God, in His Providence, to deprive of their reason in any part of this Province."[6] The Selectmen of Boston declined this legacy on the grounds that there were not enough mental cases in the vicinity to warrant the existence of such an establishment. This proved to be an error of judgment on their part. In 1811 the Massachusetts General Hospital was incorporated and a fund of over $93,000 was subscribed for building purposes. As it was deemed more urgent, the department for mental diseases in Charlestown was opened first. It was ready for the reception of patients on October 6, 1818, when it admitted a young man supposed to be possessed of a devil. This department became the McLean Asylum in 1826 as the result of a legacy of $25,000 left to the institution by a Boston merchant of that name. The corporation finally received in all an amount approximating $120,000 from the McLean estate. As early as 1822 the first published report of the hospital[7] called attention to the fact that the various amusements offered the patients included "draughts, chess, backgammon, ninepins, swinging, sawing wood, gardening, reading, writing, music, etc." A carriage and pair of horses for the use of patients was purchased in 1828. In 1835 the

6. The Institutional Care of the Insane in the United States and Canada, Vol. II, 1916.
7. Ibid.

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first pianos and billiard tables were installed and a library of one hundred and twenty volumes placed in the wards. Hot water heating was introduced in 1848. It is interesting to note that in 1827 the visiting committee reported that the rates for the maintenance of patients should not be less than three dollars or more than twelve dollars per week. In 1882 the McLean Hospital established the first training school for nurses connected with any institution for mental diseases in this country. The first class was graduated in 1886. In 1895 the hospital was removed to Waverley, Massachusetts. A chemical laboratory was opened in 1900 and a psychological laboratory in 1904. Hydrotherapy was first used in 1899, and a gymnasium was built in 1904. In 1913 the hospital owned three hundred and seventeen acres of land and had a capacity of two hundred and twenty beds, with a plant valued at nearly two million dollars.

The first provision for the care of mental diseases in Connecticut was a direct result of the activities of the State Medical Society. It was on their petition that the Hartford Retreat was chartered in 1822. Over two thousand persons subscribed to a fund for the opening of the hospital. These subscriptions included "$30 payable in medicine," "One gross New London bilious pills, price $30" and two lottery tickets.[8] About fourteen thousand dollars was subscribed in all, the citizens of Hartford contributing four thousand. The hospital building, designed to accommodate forty patients, was opened on April 1, 1824, and has always been conducted on an unusually high plane. It now averages about one hundred and seventy-five patients.

Mental cases were first provided with hospital care in Kentucky when the Eastern State Hospital was opened in Lexington on May 1, 1824. Governor Adams, who

8. The Institutional Care of the Insane in the United States and Canada, Vol. II, 1916.

suggested the establishment of this institution, in a message written in 1821 expressed the opinion that it would be of great benefit to the students of Transylvania University, "which would in time repay the obligation by useful discoveries in the treatment of mental maladies."

The State Hospital at Columbia, South Carolina, was opened in December, 1828. A curious fact in connection with its history is that in 1829 the management, having received no patients as yet, advertised for them in the newspapers of South Carolina and adjoining states.

In 1829 the necessity of making further provision for mental diseases in Massachusetts became the subject of a legislative investigation and a committee was appointed "to examine and ascertain the practicability and expediency of erecting or procuring, at the expense of the Commonwealth, an asylum for the safe keeping of lunatics and persons furiously mad."[9] The report of this committee, of which Horace Mann was Chairman, is exceedingly interesting. The following is an illustration:—"To him whose mind is alienated, a prison is a tomb, and within its walls he must suffer as one who awakes to life in the solitude of the grave. Existence and the capacity for pain alone are left him. From every former source of pleasure or contentment he is violently sequestered. Every former habit is abruptly broken off. No medical skill seconds the efforts of nature for his recovery, or breaks the strength of pain when it seizes him with convulsive grasp. No friends relieve each other in solacing the weariness of protracted disease. No assiduous affection guards the avenues of approaching disquietude. He is alike removed from all the occupations of health, and from all the attentions everywhere but within his homeless abode bestowed upon sickness. The solitary cell, the noisome atmosphere, the unmiti-

9. Reports and other documents relating to the State Hospital at Worcester, Mass. Published by order of the Senate, Boston, 1837.

gated cold and the untempered heat, are of themselves sufficient soon to derange every vital function of the body, and this only aggravates the derangement of his mind. On every side is raised up an insurmountable barrier against his recovery. Cut off from all the charities of life, endued with quickened sensibilities to pain, and perpetually stung by annoyances which, though individually small, rise by constant accumulation to agonies almost beyond the power of mortal sufferance; if his exiled mind in its devious wanderings ever approach the light by which it was once cheered and directed, it sees everything unwelcoming, everything repulsive and hostile, and is driven away into returnless banishment."[10] The investigation conducted by this committee led to the establishment of the Worcester Lunatic Hospital, later the Worcester State Hospital, opened on January 19, 1833. The original building was designed to care for one hundred and twenty patients. After many years of agitation on the part of the public, the hospital was removed to a site overlooking Lake Quinsigamond in the outskirts of Worcester in 1877. It was soon found that it was impracticable to dispense with the use of the old building on Summer Street and it became the Worcester Insane Asylum, later the Worcester State Asylum, and finally the Grafton State Hospital. In 1919 it again became a part of the Worcester State Hospital. The original building is in excellent condition today and promises an indefinite continuation of an unusual career of usefulness. Many men destined to occupy positions of importance in the psychiatric world were trained within its walls.

The death of a prominent politician in 1806 is said to have led indirectly to the establishment of the first

10. Reports and other documents relating to the State Hospital at Worcester, Mass. Published by order of the Senate, Boston, 1837.

hospital for mental diseases in Vermont.[11] His medical advisers treated him for some form of mental alienation by submerging him in water until he became unconscious. It was thought that this "would divert his mind and, by breaking the chain of unhappy associations, thus remove the cause of his disease." As this plan failed he was given opium as "the proper agent for the stupefaction of the life forces." In spite of this vigorous treatment he died. The immediate event which made possible the incorporation of the Vermont Asylum for the Insane in 1835 was a legacy of ten thousand dollars rendered available for this purpose by the will of Mrs. Anna Marsh of Hinsdale. The hospital was opened in Brattleboro in 1836 and became the Brattleboro Retreat after the establishment of the State Hospital at Waterbury. The state care of mental diseases began in Ohio with the establishment of the Columbus State Hospital, which was opened on November 30, 1838. This was the first of a number of institutions now under the supervision of the Ohio Board of Administration.

The study of the development of the state hospital system of care now takes us back to Massachusetts. Notwithstanding the fact that the state already had two institutions for mental cases, McLean and the Worcester Lunatic Hospital, further accommodations were urgently indicated. This was largely on account of the needs of the metropolitan population centering in the city of Boston. To meet this situation the city established a hospital of its own in South Boston in 1839,—the first municipal institution for this exclusive purpose in America. Orginally known as the Boston Lunatic Hospital and afterwards as the Boston Insane Hospital, it finally became the Boston State Hospital in December, 1908. Charles Dickens on the occasion of his visit to America

11. The Institutional Care of the Insane in the United States and Canada, Vol. III, 1916.

was very profoundly impressed by the hospital and made the following references to it in 1842[12]:—"At South Boston, as it is called, in a situation excellently adapted for the purpose, several charitable institutions are clustered together. One of these is the hospital for the insane; admirably conducted on those enlightened principles of conciliation and kindness which 20 years ago would have been worse than heretical, and which have been acted upon with so much success in our own pauper asylum at Hanwell. . . ." "At every meal, moral influence alone restrains the more violent among them from cutting the throats of the rest; but the effect of that influence is reduced to an absolute certainty, and is found, even as a measure of restraint, to say nothing of it as a means of cure, a hundred times more efficacious than all the straight waistcoats, fetters and handcuffs that ignorance, prejudice and cruelty have manufactured since the creation of the world." . . . "In the labor department every patient is as freely trusted with the tools of his trade as if he were a sane man. In the garden and on the farm they work with spades, rakes and hoes. For amusement they walk, run, fish, paint, read, and ride out to take the air in carriages provided for the purpose. They have among themselves a sewing society to make clothes for the poor, which holds meetings, passes resolutions, never comes to fisticuffs or bowie-knives as sane assemblies have been known to do elsewhere; and conducts all its proceedings with the greatest decorum. The irritability which would otherwise be expended on their own flesh, clothes and furniture is dissipated in these pursuits. They are cheerful, tranquil and healthy." . . . "It is obvious that one great feature of this system is the inculcation and encouragement, even among such unhappy persons, of a decent self-respect." The institution was removed to the Dorchester district of Boston in

12. Dickens, Charles: American Notes, 1842.

1895, where it now houses in the neighborhood of two thousand patients. The Boston State Hospital was the first institution of its kind in the United States to establish a separate psychopathic department, which was opened in 1912.

Influenced doubtless by the attention given to this subject in other states, Maine opened its first state hospital at Augusta in 1840. There were between two and three hundred mental cases in the state at that time. A second hospital was opened at Bangor in 1889. This humanitarian movement naturally extended to New Hampshire. Governor Dinsmore in 1832 [13] called attention to the condition of the insane, seventy-six of whom were in confinement. Of this number seven were in cells or cages, six in chains and irons and four in jail. Of those not in confinement at the time, some had been handcuffed previously, while others had been in cells or chained. After much unavoidable delay the New Hampshire State Hospital was opened at Concord on October 29, 1842. The next hospital development appeared in Georgia. After an active campaign inaugurated by the physicians of the state and continued for several years, the Georgia State Sanitarium was opened in Milledgeville in December, 1842. It now houses over four thousand patients.

By this time it became evident that further procedures on behalf of the persons requiring treatment for mental diseases in New York were imperative. The Bloomingdale Hospital, although taxed to its utmost capacity, was not able to meet the needs of the situation. In 1830 the population of the state had increased to nearly two million. The report of a legislative committee showed that there were 2,695 insane persons in the state in 1830, with hospital accommodations at Bloomingdale

13. The Institutional Care of the Insane in the United States and Canada, Vol. III, 1916.

and one other private hospital at Hudson for only two hundred and fifty of these cases. An extensive system of state care was inaugurated by the opening of the Utica State Hospital on January 16, 1843. In addition to numerous other industries and occupations, a printing office was established in the hospital and the publication of the "American Journal of Insanity" was undertaken in 1844. This was the first journal in the world to be devoted exclusively to the subject of mental diseases. "The Opal," edited, published and printed by the patients of the hospital, was started at the same time. In the early days, strong rooms, padded cells and mechanical restraint of all kinds were used extensively. The "Utica Crib" has received a great deal of attention. This consisted of an ordinary ward bed enclosed in wooden slats, making it impossible for the patient to escape. These were eliminated for all time by Dr. G. Alder Blumer in 1887. Attendants were first required to wear uniforms in 1887. During the following year female nurses were assigned for the first time to male wards. Annual field day exercises for the benefit of the patients have been held since 1887. Baseball games, steamboat excursions, Fourth of July celebrations and Christmas entertainments have been in vogue since 1888. With the development of a large department on the "Marcy" site, nine miles from the city, the Utica State Hospital promises to add new accomplishments to an already dignified history.

The early care of mental cases in Rhode Island, as shown by a report to the legislature by Thomas R. Hazard in 1851, was perhaps no worse than that of other states, although the conditions he described so graphically have not been attributed to other New England communities by historians. The following extract from a codicil to the will of Nicholas Brown, who died in 1843, is proof of the fact that this unfortunate state of affairs

had not entirely escaped notice[14]:—"And whereas it has long been deeply impressed on my mind that an insane or lunatic hospital or retreat for the insane should be established upon a firm and permanent basis, under an act of the Legislature, where that unhappy portion of our fellow beings who are, by the visitation of Providence, deprived of their reason, may find a safe retreat and be provided with whatever may be most conducive to their comfort and to their restoration to a sound state of mind: Therefore, for the purpose of aiding an object so desirable and in the hope that such an establishment may soon be commenced, I do hereby set apart and give and bequeath the sum of $30,000 towards the erection or endowment of an insane or lunatic hospital or retreat for the insane, or by whatever other name it may be called, to be located in Providence or its vicinity." Supplemental contributions by Cyrus Butler made it possible for the incorporators to found the Butler Hospital in Providence. The first patients were received on December 1, 1847.

More than any other one person, Miss Dorothea L. Dix of Massachusetts was undoubtedly directly responsible for the inauguration of the state care of mental diseases in this country. She is credited with having memorialized twenty-two different state legislatures on this subject. One of her first accomplishments consisted in inducing the New Jersey legislature to make an appropriation for the establishment of the state hospital at Trenton. This institution was opened in 1848, after some of the hardest campaigning that Miss Dix conducted. The last years of her life were spent as an honored guest of the hospital and she died there in 1887 at the advanced age of eighty-five.

Indiana inaugurated a system of state care by the

14. The Institutional Care of the Insane in the United States and Canada, Vol. III, 1916.

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establishment of the Central Hospital for the Insane in 1848. The East Louisiana Hospital at Jackson was opened in the same year. Missouri made its first provision for mental cases by opening a hospital at Fulton in 1852. Notwithstanding the fact that the first hospitals for mental diseases in this country were located in Philadelphia, the Commonwealth of Pennsylvania did not make any provision for a state institution until the State Hospital at Harrisburg was opened in 1851. This was only undertaken after a vigorous campaign on the part of Dorothea Dix had made some legislative action almost imperative. This is probably the only hospital in the country which has found it necessary to demolish all of the original buildings and replace them by others. In 1847 Miss Dix visited Tennessee and started a movement which resulted in the opening of The Central Hospital for the Insane at Nashville, the first institution of the kind in the state. California entered the state hospital field in 1853 with the establishment of an institution at Stockton. The St. Elizabeths Hospital in Washington, D. C., the first federal institution for mental diseases, was opened for patients in 1855. It receives cases from the United States Government Services and from the District of Columbia. Dorothea Dix was largely instrumental in its origin. The St. Elizabeths Hospital was an early invader of the field of scientific research. A pathologist was appointed in 1883. It was one of the first institutions to use hydrotherapy extensively. It now cares for nearly four thousand patients. Mississippi established its first state hospital for mental diseases in 1856, North Carolina in 1856, West Virginia in 1859, Michigan in 1859, Wisconsin in 1860, Texas in 1861, Kansas in 1866, Minnesota in 1866, Connecticut in 1868, Rhode Island in 1870 and Vermont in 1891. The Sheppard and Enoch Pratt Hospital, a well known private institution in Baltimore, was also opened in 1891.

It is hardly worth while at this time to emphasize the fact that the necessity of providing adequate facilities for the care and treatment of mental diseases, a problem which received little consideration of any kind for many years, gradually led to the elaboration of an extensive system of state hospitals. These are to be found now in every part of the country. They have long since passed through the purely custodial stage and have developed into highly specialized modern hospitals of most advanced type. Their function is to provide proper treatment for persons who cannot for financial or other reasons be cared for in the private hospitals which are to be found in almost all localities. These institutions, originating in Virginia in 1773, now represent one of the most important activities conducted by any state government. The extent of the field which they cover is illustrated by the fact that Kansas, Kentucky, Nebraska, North Carolina, Oklahoma, Tennessee, Texas, Washington, West Virgina and Wisconsin each maintain three state hospitals for mental diseases; Iowa, Maryland, Missouri and Virgina each have four institutions of this type, Minnesota five, California, Indiana and Michigan six, Pennsylvania seven, Ohio and Illinois nine, Massachusetts twelve and New York fifteen. In addition to this eight other states have two hospitals each and seventeen find one such institution sufficient for their needs. It is worthy of note that every state without any exception has now recognized the necessity of making provision for the care and treatment of mental diseases.

CHAPTER III

LEGISLATION AND METHODS OF ADMINISTRATION

The administration of the earlier hospitals for mental diseases was placed very wisely in the hands of local boards of directors, managers or trustees. These were made up of persons prominent in the community in which they lived, well known as having a keen interest in humanitarian movements, and fully deserving of the confidence reposed in them by the public. They received no compensation other than the satisfaction of having served in a worthy cause. The state hospital at Williamsburg, Virginia, the first of its kind in America, was controlled by a court of directors which was made up of some of the most prominent Virginians of colonial days. It included Thomas Nelson, Jr., a signer of the Declaration of Independence who served with distinction in the Revolutionary War, Peyton Randolph, the President of the first Continental Congress, and George Wythe, the preceptor in law of both Marshall and Jefferson, as well as a signer of the Declaration of Independence and professor of law at William and Mary College, together with various other distinguished citizens, some perhaps of less prominence, but all men of the highest standing in Virginia. The first "court" consisted of fifteen members. The second state institution, the Maryland Hospital, under the management of the city of Baltimore for some years, was eventually placed under the control of a board of visitors in 1828. Kentucky's first hospital was from the beginning in the charge of a board of ten commissioners. When the sec-

ond Virginia institution was opened at Staunton, the form of organization adopted at Williamsburg was duplicated and a court of directors appointed. There were, however, thirteen instead of fifteen members. The state hospital at Columbia, South Carolina, was originally, and still is, under a board of regents. The Massachusetts hospitals, dating from the opening of Worcester in 1833, have always had trustees. The Vermont Asylum, later the Brattleboro Retreat, was also managed by a board of trustees, as was the New Hampshire State Hospital at Concord. The Georgia State Sanitarium, opened in the same year, adopted a similar form of control. The Utica State Hospital has been conducted from the first by a board of managers, a term which is generally used by the New York institutions. When the Trenton State Hospital was founded it was placed under a board of ten managers, more or less along the lines followed at Utica. The State Hospital at Raleigh, North Carolina, had a board of directors. For many years the earlier institutions for mental diseases were under no other form of control, the powers of the trustees being absolute. This is still the case in a few states. Usually, however, there is some additional form of supervision.

Boards of trustees, managers, directors, or some other local governing body, exist in the following states but without exclusive control:—Alabama, California, Connecticut, Delaware, Georgia, Idaho, Indiana, Louisiana (administrators), Maine, Maryland, Massachusetts, Mississippi, Missouri, New Jersey, New Mexico, New York, Pennsylvania, South Carolina (regents), Texas and Virginia.[1]

In the following states the hospitals have no local boards of any kind:—Arizona, Arkansas, Colorado, Florida, Illinois, Iowa, Kansas, Kentucky, Michigan,

1. Koren, John: Summaries of State Laws Relating to the Insane. National Committee for Mental Hygiene, New York, 1917.

Minnesota, Montana, Nebraska, Nevada, New Hampshire, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia, Wisconsin and Wyoming.[2]

As the state hospitals increased in number and importance, steps were taken to coordinate their activities and for various obvious reasons they were soon grouped together in departments. In the states having a sufficient number of hospitals to warrant such a procedure, separate specialized administrative units were established under lunacy commissions, etc. In less populous communities where there were only a few hospitals there soon developed a tendency to associate them with the charitable, correctional and, in some instances, penal institutions. Seventeen states, as has been shown, now have only one hospital for mental diseases, eight have two and ten only three institutions. This led either to placing the hospitals under boards of charities and corrections or to the organization of new departments known as boards of control. The hospitals for mental diseases are under the supervision of boards of charities and corrections in the following states:—Colorado, Connecticut, Indiana, Louisiana, Maine, Nebraska, North Carolina, South Carolina, South Dakota and Virginia.[2]

Boards of control exist in Arkansas, California, Iowa, Kentucky, Minnesota, North Dakota, Oregon, Vermont, West Virginia and Wisconsin. California has, in addition to this, a board of charities and corrections and a commission in lunacy. Vermont has a director of state institutions. In New Hampshire the board of trustees of the state hospital constitutes a commission in lunacy. A number of states have special departments for the supervision of hospitals for mental diseases and in some

2. Koren, John: Summaries of State Laws Relating to the Insane. National Committee for Mental Hygiene, New York, 1917.

instances for the control of all institutions. Delaware has a board of supervisors of state institutions. This is essentially a board of control. This is true of the board of commissioners of state institutions in Florida. Illinois has a department of public welfare, which places the control of the charitable, penal and corrective institutions, as well as the hospitals for mental diseases, largely in the hands of one man, a layman. Michigan and Pennsylvania also have departments of public welfare. Kansas has placed its hospitals under the control of a board of administration of state charitable institutions. Maryland has a lunacy commission and Missouri a board of managers. Montana and Nevada each have a board of commissioners for the insane. New Jersey has a state board of control of institutions and agencies, the direction of the state hospitals being delegated to a commissioner of charities and corrections. New York has the largest department in the country having exclusive state hospital functions. It is under the supervision of a hospital commission. Ohio has a board of administration which manages and governs all of the charitable, corrective and penal institutions of the state. This is, of course, a board of control pure and simple. Oklahoma has a commissioner of charities and corrections who is an elective officer, and has, in addition, a lunacy commission and a board of public affairs. Rhode Island has a penal and charitable commission of nine members. Utah has a board of insanity and Wyoming a board of charities and reform. Massachusetts has a department of mental diseases under the direction of a medical commissioner, with four unpaid associates. In addition to the hospitals for mental diseases the department has under its jurisdiction the institutions for the feebleminded and the epileptics.

The necessity of some form of central supervision or control, of state institutions in general and hospitals

for mental diseases in particular, has long been a subject of serious consideration and discussion. The administration of hospitals, prisons, reformatories, etc., by a central board of control may be indicated in states where there are only a few institutions and the creation of highly specialized and expensive departments obviously would not be warranted. The question may very properly be raised as to the necessity of any supervision other than that by local boards of trustees in such communities. A study of methods of supervision made some years ago by the medical director of the National Committee for Mental Hygiene [3] shows that the board of control system leaves much to be desired. He has expressed himself on this subject in no uncertain terms, as is shown by the following:—"Under Boards of Control, politics influence the care of the sick to a degree unknown under different types of supervision and the scientific and humane aspects of the work undertaken are generally subordinated to doubtful administrative advantages. With hardly an exception, these Boards of Control have not endeavored to secure better commitment laws, to lead public sentiment so that higher standards of treatment will be demanded or to deal with the great problems of mental disease in any except their narrowest institutional aspects. There has been striking absence of evidences of any feeling of personal responsibility in these matters; indeed many members of these boards would doubtless unhesitatingly state that their duties do not involve such considerations. What the results would have been if efficient and fearless local boards of managers had been retained when these states created Boards of Control cannot be stated. It is an essential part of the policy which places the care of the insane under this form of administration that there shall be no "division of re-

3. Salmon, Thomas W.: The State Care of the Insane under State Boards of Control. State Hospital Bulletin, February 15, 1915.

sponsibility'' and, seemingly, there is no place in such a scheme for bodies which are as much interested in the personal welfare of the wards of the State as they are in governmental ''efficiency'' and, which, moreover, are directly accountable to their neighbors—the friends and relatives of patients. It is interesting to compare some of the conditions mentioned with those existing in States in which the care of the insane is entrusted to Boards created for that special purpose. In these States,—California, Maryland, Massachusetts and New York,—it can be said truly that the care of the insane reaches its highest level.''

The experience of the past has shown that the injection of politics into the administration of state institutions is almost invariably due to the over-centralization of power in state departments, the local boards of trustees or managers either being abolished or largely deprived of their authority. The greatest menace to the future welfare of the hospitals for mental diseases is, in the opinion of many, the unfortunate result of a popular and more or less legitimate demand for the reorganization of state governments, reducing their administrative activities to a few separate departments, each one under the entire charge of a director responsible only to the Governor. The argument for this procedure is that it does away with innumerable commissions, boards and departments working along independent lines without any reference to the desirability of coordinating the activities of the state as a whole and places the affairs of the commonwealth on an efficient, systematic and economical basis. There is no question as to the theoretical advisability of such methods. The difficulty is, that in putting into practical operation this unquestionably commendable undertaking, the humanitarian aspect of the charitable enterprises conducted by state governments for more than a century, is likely to be lost sight of. It

is almost invariably urged that the directors of these various departments should be experienced business men of recognized ability and that in only such a way can the affairs of the state be put on a "businesslike basis." It must be confessed that this argument is one which appeals very strongly to the taxpayer, who naturally has not given the matter very careful thought. There are other important considerations, however, where the question of administering hospitals is involved. As Commissioner Kline[4] has said:—"If it be conceded that the care and treatment of the mentally sick is a highly specialized medical problem, requiring the services of medical experts, and that the institutions function primarily for the welfare of the patient, then the supervision and control of institutions should be in the hands of medical men especially trained for the purpose."

In some instances where the state governments have been reorganized and the proposed consolidation of departments effected, the administration of the state hospitals has come under the direction of a single individual without hospital or institution experience of any kind and without any special knowledge of medicine or psychiatry. There is no escaping the fact that the administration of a hospital is a medical problem. Nor is there any question as to the advisability of some central supervision and financial control of institutions. The hospital departments in our more populous states are, however, so extensive and so important that they cannot be merged with other interests without sacrificing to a considerable extent the welfare of the patients. It should be remembered, moreover, that the administration of hospitals for mental diseases is a specialty and a large one, not specifically related to the problems arising in the management

4. Kline, George M.: Proposed Reorganization and Correlation of State Institutions in Massachusetts. American Journal of Insanity, January, 1920.

of charitable institutions or prisons. The best results have been obtained where there is a division of responsibility between local boards of trustees or managers and a central body charged with the supervision, and a limited or complete financial control, of institutions for mental diseases only. The head of such a department should unquestionably be a medical man with psychiatric hospital experience. This policy has been responsible for the high standards maintained in the state hospitals of Massachusetts and New York.

It is, unfortunately, true that the care of mental diseases is not exclusively a function of the state or private hospitals. In thirteen states, county or municipal institutions are maintained and in twenty-five, persons suffering from mental diseases may legally be cared for in almshouses or poorhouses.

There is little uniformity in the laws of the various states relative to the hospital care of mental diseases, aside from the fact that almost without any exception they are designed to provide solely for the legal custody of the so-called "insane" and the protection of the public. "Insanity," as a matter of fact, is a purely legal and not a medical term, and may be said to relate to mental diseases only in so far as they come within the jurisdiction of the courts.

Statutory enactments relative to the forms of mental disease which render the individual subject to legal custody and detention in an institution are illustrated by the provisions of the Civil Code of Illinois. This defines an "insane" person as one "who by reason of unsoundness of mind is incapable of managing his own estate, or is dangerous to himself or others, if permitted to go at large, or in such condition of mind or body as to be a fit subject for care and treatment in a hospital or asylum for the insane." In Alabama a person is legally insane "if he has been found by a proper court deficient or defective

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mentally so that for his own or others' welfare his removal is required for restraint, care, and treatment." As a general rule, provision by law is made 1, for an application for commitment; 2, for a medical certificate of two or more properly qualified physicians showing the person to be insane and a proper subject for care and treatment in an institution, and 3, for the order of the Judge of a Court of Record for commitment to a state hospital. The necessity of some form of legal authorization for detention is a result of the fundamental principle in English procedure that no man, against his will, may be deprived of his liberty without due process of law. This right was recognized and perpetuated by the Magna Charta signed by King John in 1215 and is very definitely referred to in at least two different articles in the Constitution of the United States.

As a rule the application for commitment can be made only by certain persons definitely specified in the law,—parents, near relatives, the guardian or various public officials such as overseers of the poor. In Massachusetts any person may sign such a petition. In Florida a request must be jointly made by five reputable citizens. This would not appear to be a material point in law. Some courts require that a notice of the application be served upon the person whose commitment is requested. In New York a notice must be served at least one day prior to the hearing of the case unless the judge personally certifies that substituted service has been made upon some other person or that personal service was considered inadvisable for some adequate reason noted and has therefore been dispensed with. The Arizona law requires the judge to hold a hearing and have the alleged insane person before him for examination. In California a jury trial may be requested and a commitment made only on a verdict of insanity requiring a vote of at least three-fourths of the jurors. A trial by jury may be asked for

in Colorado, Connecticut and many other states and must be granted. Trial by jury is necessary in all cases in Georgia. Provision is usually made for an appeal to some higher court. In many states hearings are mandatory, in others they are optional with the court. In Iowa each county has a board of three commissioners of insanity, one of whom must be a physician. They have full authority under the law to make commitments to institutions. Hearings are required in Kansas but inquests in lunacy may be either by jury or commission at the discretion of the court. In Kentucky inquests in lunacy must be held by the Circuit Court of a county. The hearings are always in the presence of a jury. In Louisiana two physicians must examine the patient in the presence of the court. If the physicians do not agree the judge himself decides the case. In Maine parents and guardians may send insane minors to an institution without a commitment. Other insane persons are subject to examination by the municipal officers of towns. In Mississippi the Chancery Courts have jurisdiction over writs of lunacy and an inquest may be made by jury. Nebraska has three commissioners in insanity in each county, appointed by the judge of the District Court. In the case of persons found insane they issue a warrant authorizing admission to a state hospital. Each county in New Jersey has a commissioner in lunacy, who has jurisdiction over the steps relating to admission to institutions. Commitments are made by the judge of a Court of Record. All orders for commitments in North Carolina must be made by the clerk of a Superior Court. No person who has moved into the state while insane is deemed a resident. North Dakota has a board of three commissioners of insanity in each county, the county judge being a member. The commissioners authorize hospitals to receive persons found to be insane. Appeal may be made to a commission of three persons to be ap-

pointed by the county judge. A jury trial is provided for, on demand, in Oklahoma. In cases of appeal the county judge must appoint a commission of three, one of whom is a physician, for the examination of the patient. Examination by a commission of three is required in Pennsylvania before commitment by a justice of a Court of Common Pleas or Quarter Sessions. South Dakota has a board of three commissioners of insanity in each county, the county judge being a member. An insane person may be received in a hospital in Vermont on the certificate of two physicians or by the order of a County or Supreme Court without a physician's certificate. Appeal may be made to the state board of control. In Virginia the committing judge and two physicians constitute a commission for the examination of alleged insane persons. In West Virginia there is a county commission of lunacy composed of the president and clerk of the County Court and the prosecuting attorney. Commitments are ordered by the commission. On the arrival of the patient at a hospital a board composed of the Superintendent and assistant physicians must be convened for the examination of the patient. Application for commitment must be made in Wisconsin by three reputable citizens. The determination of insanity in Wyoming must be made in all instances by a jury of six men.

When an insane person has been committed to an institution it is sometimes the duty of an officer of the court to accompany the patient to the hospital. The order of the court in Massachusetts includes the following:— "Now, Therefore, You, the said Sheriff, Deputies, Constables or Police Officers, and each of you, with necessary assistance, . . . are hereby commanded, in the name of the Commonwealth of Massachusetts, forthwith to convey the said ——— to the hospital aforesaid, and to deliver h— to the Superintendent thereof, and make

due return of a copy of this precept with your doings therein." This practically amounts to a warrant of arrest and makes the removal of the patient to the hospital to all intents and purposes analogous to a criminal proceeding.

Attention should be called to one of the very excellent and humane provisions of the New York Law:—"All county superintendents of the poor, overseers of the poor, health officers and other city, town or county authorities, having duties to perform relating to the poor, are charged with the duty of seeing that all poor and indigent insane persons within their respective municipalities, are timely granted the necessary relief conferred by this chapter. The poor officers or authorities above specified, except in the city of New York and in the county of Albany, shall notify the health officer of the town, city or village of any poor or indigent insane or apparently insane person within such municipality whom they know to be in need of the relief conferred by this chapter. When so notified, or when otherwise informed of such fact, the health officer of the city, town or village, except in the city of New York and the county of Albany, where such insane or apparently insane person may be, shall see that proceedings are taken for the determination of his mental condition and for his commitment to a state hospital. Such health officer may direct the proper poor officer to make an application for such commitment, and, if a qualified medical examiner, may join in making the required certificate of lunacy. When so directed by such health officer it shall be the duty of the said poor officer to make such application for commitment. When notified or informed of any poor or indigent insane or apparently insane person in need of the relief conferred by this chapter such health officer shall provide for the proper care, treatment and nursing of such person, as provided by law and the rules of the

commission, pending the determination of his mental condition and his commitment and until the delivery of such insane person to the attendant sent to bring him to the state hospital, as provided in this chapter."

In New York City these responsibilities are delegated to the trustees of Bellevue and Allied Hospitals and in the county of Albany to the Commissioner of Public Charities. In New York City a medical examiner or nurse from the psychopathic wards of Bellevue Hospital, or both, may be sent "to the place where the alleged insane person resides or is to be found." If in the opinion of this examiner medical care is necessary, the patient is taken to the psychopathic ward for observation for a period of not to exceed ten days. When a person has been committed to a state hospital in New York, the Superintendent is required by law to send a trained nurse or attendant to bring the patient to the institution. The desirability of having such cases under the immediate care of nurses who have had psychiatric training would seem to be obvious. There is no reason why persons suffering from mental diseases should be subjected to the same form of supervision that is given to criminals. The New York plan of holding the health officer responsible for providing proper hospital care and treatment for mental cases not coming directly under the legal jurisdiction of other persons or officials is well worthy of serious consideration. There would appear to be no reason why the health officer should not be responsible for mental conditions in somewhat the same way that he is for communicable diseases. Nor is there any public official to whom the supervision of the insane pending commitment can more logically be delegated.

In twenty-nine states voluntary patients may be received by state hospitals. The provisions of the law usually are that the patient must make application on his own initiative, that his mental condition must be

such as to understand the purpose of this proceeding and the need of treatment and that he must be released on a demand in writing in from three to seven days of such request. In the twelve following states the temporary care of the insane in jails, usually as an emergency measure, is still authorized:—Arkansas, Colorado, Georgia, Indiana, Iowa, Nebraska, North Dakota, Oklahoma, South Dakota, Virginia, West Virginia and Wisconsin. Arrangements of some kind for the emergency care of cases pending examination and commitment are provided for in Connecticut, Illinois, Maine, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Washington and Wisconsin. Massachusetts has the most comprehensive provisions for temporary care and observation. The Superintendent of a state hospital may receive and detain, for not more than five days without a court order, any person whose case is "certified to be one of violent and dangerous insanity or of other emergency" by two qualified medical examiners. Officers authorized to serve a criminal process, or police officers, must, on the request of the applicant or one of the examining physicians, bring such a person to the hospital. The applicant for this form of admission must within five days arrange for the commitment of the person so received, or for his removal from the hospital.

Under the provisions of the Massachusetts Law a person found by two qualified examiners to be in such mental condition that his admission to a hospital for the insane is necessary for his proper care or observation may be committed for a period of thirty-five days "pending the determination of his insanity." The superintendent must discharge such a person within thirty days if not insane or report to the committing judge his opinion that the patient's mental condition is such as to require a further residence in the hospital necessary.

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Under the provisions of the so-called "Boston Police Act" (chapter 307 of the Acts of 1910) all persons suffering from delirium, mania, mental confusion, delusions or hallucinations, under arrest or "who come under the care or protection of the police of the city of Boston" shall be taken to the Psychopathic Hospital "in the same manner in which persons afflicted with other diseases are taken to a general hospital." Cases suffering from delirium tremens or drunkenness may be refused by the hospital authorities; otherwise, all such persons are admitted, observed and cared for "until they can be committed or admitted to the hospital or institution appropriate in each particular case" unless the patient recovers or is discharged.

Under the provisions of the Massachusetts Law "No person suffering from insanity, mental derangement, delirium or mental confusion, except delirium tremens and drunkenness, shall, except in case of emergency, be placed or detained in a lockup, police station, city prison, house of detention, jail or other penal institution, or place for the detention of criminals. If, in case of emergency, any such person is so placed or detained, he shall forthwith be examined by a physician and shall be furnished suitable medical care and nursing and shall not be so detained for more than twelve hours." In Boston these cases are sent to the Psychopathic Hospital. In other parts of the state they are cared for by the board of health of the city or town in question until they can be committed to a hospital or cared for by relatives or friends.

The superintendent of a state hospital, under the authority of chapter 123 of the General Laws, "When requested by a physician, by a member of the board of health or a police officer of a city or town, by an agent of the institutions registration department of the city of Boston, or by a member of the district police 'may' re-

ceive and care for in such hospital as a patient, for a period not exceeding ten days, any person who needs immediate care and treatment because of mental derangement other than delirium tremens or drunkenness." Such cases are received on application in writing filed at the time of the reception of the patient or within twenty-four hours thereafter and must be discharged or committed within ten days unless they make a request for voluntary care. During 1920 there were 1,929 temporary care cases reported by the various Massachusetts state hospitals, as follows:

Boston State Hospital (Psychopathic Department) 1,049, Danvers 217, Northampton 188, Worcester 159, Taunton 154, Westborough 68, Foxborough 56, Medfield 33, Grafton 2, and Gardner State Colony 3.

Nowhere else in the country has this particular form of legislation been used so extensively. It is something more than a mere authorization for the reception of mental cases in observation or detention wards. Under its provisions, at the request of any reputable practicing physician and without further legal formalities, mental cases may be cared for in a state hospital until their condition can be definitely determined and arrangements made for their proper disposition and treatment. The criticism to which this plan is open is that the period of time, ten days, is not long enough. It should be extended to thirty days at least.

The provision of the Massachusetts Law for the determination of the mental condition of persons under arrest or held under criminal charges is an excellent one and well worthy of consideration. This is covered by chapter 123 of the General Laws:—"If a person under complaint or indictment for any crime, is, at the time appointed for trial or sentence, or at any time prior thereto, found by the Court to be insane or in such mental condition that his commitment to a hospital for the in-

sane is necessary for the proper care or observation of such person pending the determination of his insanity, the Court may commit him to a State hospital for the insane under such limitations as it may order." The Court may in its discretion employ one or more experts to examine such persons. These cases are on recovery returned by the hospital authorities to the custody of the Court. One of the interesting features of the Massachusetts Law is the provision relating to persons indicted for murder or manslaughter but acquitted by a jury by reason of insanity. Such cases are committed to a state hospital for life and can be discharged only by the Governor of the state, with the advice and consent of the Executive Council, when he is satisfied, after an investigation by the Department of Mental Diseases, that such a person may be discharged "without danger to others." Persons charged with a crime "other than murder or manslaughter" and acquitted by a jury by reason of insanity may also be committed by the Court to a state hospital "under such limitations as it deems proper" and such orders may be revoked at any time.

A recent enactment (Chapter 415, Acts of 1921) provides that "Whenever a person is indicted by a grand jury for a capital offense or whenever a person, who is known to have been indicted for any other offense more than once or to have been previously convicted of a felony, is indicted by a grand jury or bound over for trial in the superior court, the clerk of the court in which the indictment is returned, or the clerk of the district court or the trial justice, as the case may be, shall give notice to the department of mental diseases, and the department shall cause such person to be examined with a view to determine his mental condition and the existence of any mental disease or defect which would affect his criminal responsibility. The department shall file a report of its investigation with the clerk of the court in

which the trial is to be held, and the report shall be accessible to the court, the district attorney and to the attorney for the accused, and shall be admissible as evidence of the mental condition of the accused."

The whole question of methods of commitment was made the subject of an extended study by the National Committee for Mental Hygiene in 1919. A comprehensive report covering such legislation as was deemed necessary was submitted by a committee consisting of the following:—Dr. George M. Kline, Commissioner, Massachusetts State Department of Mental Diseases; Dr. Charles W. Pilgrim, Chairman of the New York State Hospital Commission; Dr. Owen Copp, Superintendent, Pennsylvania Hospital, Department for Nervous and Mental Diseases: Dr. Frank P. Norbury, of the Board of Public Welfare Commissioners of Illinois; and Dr. Frankwood E. Williams, Associate Medical Director, National Committee for Mental Hygiene. In addition to the ordinary form of commitment by a court of record in a civil proceeding, they recommended legislation in all states authorizing temporary and emergency care, observation pending the determination of insanity, and voluntary admissions. In a general way, the legislation recommended followed the lines of the present laws of Massachusetts and New York.

CHAPTER IV

THE STATE HOSPITALS—THEIR ORGANIZATION AND FUNCTIONS

The efficiency of the hospital is very largely a reflection of its organization, administration and personnel, but the material equipment of the institution and the financial resources available are factors of no less importance. The future of a hospital is often settled for all time by the degree of judgment exercised in determining its location. The founders must be guided to a very great extent by the purposes which they hope to accomplish. In the location of a public institution of any considerable size, however, there are certain considerations which, if overlooked, will eventually lead to serious difficulties. The initial cost of the property is unfortunately a factor which cannot be disregarded. It is usually considered desirable for obvious reasons to choose a site somewhat removed from great centers of population. A sufficient acreage must be obtained to guarantee an adequate amount of land for farming and gardening on a fairly large scale. This not only insures a ready occupation for patients, but will materially reduce the cost of maintenance. A point which should never be lost sight of is the necessity of choosing a location which can be reached easily by railroads, trolley cars and motor trucks. The hospital must be readily accessible to the relatives and friends of patients. It is equally important that it should be convenient for employees; otherwise an adequate force of nurses and attendants can only be maintained with great difficulty. Above all, the hospital should be in the community which it is destined to serve.

The patients should not be removed to any great distance from their homes. In numerous instances severe hardships have been inflicted upon all persons concerned owing to the fact that state institutions have been located in districts where they are not needed by the community and where they cannot be easily reached.

Every large public hospital should be in almost immediate contact with a railroad. Otherwise thousands of dollars must be expended annually for the transportation of coal, food and other necessary supplies. The fertility of the soil to be used for agricultural purposes is only second in importance to the necessity of obtaining satisfactory building sites. A practically unlimited supply of pure water is absolutely essential. The possibility of utilizing some existing system of sewerage or providing the institution with one of its own should be given serious consideration. Drainage must be provided for and sanitary surroundings obtained. There should always be opportunity for future expansion of the plant. Practically every state of any importance has at least one institution which has been seriously handicapped throughout its entire existence by an unfortunate neglect of one or more of these important considerations.

In 1917 a special commission was appointed by the Governor of New York for the purpose of preparing an intelligent and comprehensive plan for the future development of the institutions of the state. In a report presented during the following year the commission called attention to a phase of hospital construction the importance of which cannot be too strongly emphasized.[1] "Nearly all of the state hospitals suffer from the fact that as originally planned they were smaller institutions and of a different type from those that are now desired, and the additions which have been made from time to

1. Thirteenth Annual Report, New York State Hospital Commission. Albany, 1919.

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time during the past twenty-five years, in order to meet the immediate demands for increased space, have not always been made with a completed and well rounded institution in mind. The results are badly balanced institutions, lacking in efficiency and ease of administration. . . . In planning a hospital for the insane the ultimate maximum capacity should be decided upon even if it is not possible to build the entire institution at once. A well co-ordinated plan should then be developed, which would permit the building of various sections as appropriations become available, with the idea of finally having a complete institution, harmonious in arrangement, and so planned as to attain the most desirable classification and the maximum of efficiency and economy in administration." The classification of the population which an average state hospital should provide buildings for is shown by the commission as follows:—Reception building, six per cent; convalescents, four per cent; hospital buildings, two per cent; buildings for the infirm, eight per cent; noisy, disturbed, etc., twenty per cent; epileptics, three per cent; working patients, forty per cent; quiet, clean and appreciative chronic class, fourteen per cent; and tuberculous, three per cent. They also suggest that every hospital should have a small isolation building for the care of contagious diseases. Their recommendation as to the amount of floor space per patient in the various buildings is exceedingly interesting and no less important. "First, That single rooms should have about eighty square feet of floor space. A room seven feet by eleven or eight by ten, while large enough for one bed, a bureau and a chair, is not large enough to permit placing two beds end to end or alongside of each other. If a room measures ten feet by twelve, there is always a temptation to place two beds in it if the hospital becomes crowded, and the advantage of single rooms is wholly lost. The number of single rooms in an institution should

be from fifteen per cent to twenty per cent of the population, varying with the character of the cases to be cared for. Second, Dormitories should have above fifty square feet of floor space per patient, and no dormitory should have more than fifty beds nor less than six. This, of course, applies to the wards for the chronic cases. An adequate system of ventilation throughout the hospital is presupposed. Third, The day space allotted should provide forty to fifty square feet per patient. Fourth, The dining room allowance should be from fourteen to sixteen square feet per patient, in order to permit the use of small tables and to provide adequate passages for the expeditious service of food."

In former years much time and space was devoted to a discussion of the respective merits of the congregate type of hospital construction, the so-called "Kirkbride" or block plan (although it was in use long before Kirkbride described it) and the arrangement of buildings in groups. There is no question but what an institution that is all under one roof can be administered much more economically and operated at a lower maintenance cost. Very little, if any, advantage is derived by the patient from the group scheme. In its practical operation in the state hospitals almost the only point of difference, as far as the patient is concerned, is that he must go out of doors as a rule to get to the dining room in the summer as well as in the winter, in good weather and bad. This has been responsible for much discomfort and has resulted in a great increase in the number of escapes. When buildings are arranged in groups they should be connected with a central dining room either by corridors or tunnels. Small cottages, except for special purposes, are out of the question as far as state institutions are concerned, on account of the cost involved. As a matter of fact, in the development of a large hospital all types of construction must be ultimately employed. The re-

ception building should be separate and detached from the other parts of the hospital, as should, of course, the wards for the tuberculous cases, the contagious building, the building for convalescents, the farm cottages, etc. The noisy and violent patients certainly should be in separate buildings far enough away so that they will not disturb others. The hospital wards, for the exclusive care of bed patients, may well be detached. The larger part of the hospital population, consisting of the quiet, orderly, chronic, custodial cases, can be cared for just as well in the large buildings as in groups or cottages.

The reception building, from the standpoint of the patient, is the most important building in the hospital. It should be equipped to care for from five to ten per cent of the hospital population, depending entirely upon the location and special problems of the institution in question and the community which it serves. In any event it should include both large and small dormitories, the larger accommodating from fifteen to thirty patients, and the smaller not more than six or eight, adequate day-room space, numerous single rooms and commodious enclosed verandas. There should, of course, be ample dining room facilities as well as diet rooms to provide for those whose condition makes it necessary or advisable for them to be served in the wards. Special provision should be made for the separate care of the noisy, violent, disturbed, etc., and they should be in a part of the building which can be isolated. The suicidal cases must be given special care and separate supervision. A well equipped hydrotherapeutic department is an essential part of the reception building. Continuous bath and pack rooms are equally necessary. No less important are admission and examination rooms, a pharmacy, laboratories, rooms for the special treatment of eye, ear, nose and throat conditions, recreation rooms, a library, space for occupational therapy, provision for social service and

psychological departments, etc. At least two physicians should reside in the building. It is unfortunate that reception buildings as a rule are entirely too small. They should be large enough so that the acute and recoverable cases, as well as those found on observation not to require hospital treatment, can be returned to their homes without any further contact with the hospital or the necessity of a protracted residence with the chronic and purely custodial cases.

The experience of many years has shown quite conclusively that the supervision and general direction of a hospital for mental diseases should be delegated to a medical superintendent with such clinical and administrative assistants as the nature and size of the institution may indicate. The dual system of management frequently suggested by politicians, with a layman as the executive head and a medical director subordinated to his authority, has proved to be a failure in every instance in which it has been tried. The administrative details necessary to the successful operation of a large institution are such as to require the entire time and attention not only of the superintendent but usually of an assistant superintendent. In a large hospital the activities of the medical staff should be under the immediate supervision of a specialist whose training and experience qualify him to direct the clinical and psychiatric work of others. This is a quite sufficient task to require the constant attention and undivided energies of a clinical director who has no other interests or responsibilities. In this way recent graduates with proper qualifications may be interested in entering the psychiatric field. Every state hospital, in addition to fulfilling its entire duty to the patients in its charge, should be a training school for psychiatrists, social workers, psychologists, occupational therapists and psychiatric nurses. The hospital staff, as well as providing for the services of physicians well trained in

psychiatry, must include other specialists. A hospital of any size should have a staff of consulting and visiting physicians including several internists and surgeons, a gynecologist, a neurologist, a dermatologist, an ophthalmologist, a laryngologist and an otologist. These consultants should visit the hospital regularly and direct and supervise the work of the resident staff along the lines of their specialty. It is hardly necessary to suggest today that a hospital of any size without a resident dentist is one which is not properly equipped to care for its patients.

Nothing is more important in the modern hospital than the training school for nurses. It is the nursing care of the patients more than any other one thing perhaps that has made the difference between the old time asylum and the psychiatric hospital of the highest type. The state hospital training school of the present day offers its pupils a three years' course of instruction, including a year of practical experience in an affiliated general hospital. Its graduates, moreover, are trained not only in psychiatric and general nursing, as well as the care of neurological cases, but in hydrotherapy, occupational therapy, reeducational, industrial and social work. The nurse of the future who has had no psychiatric training and experience is one whose education is not complete. Every effort should be made to encourage the training schools of general hospitals to send their senior nurses to a hospital for mental diseases for a service of at least three months. The specialized care and treatment of cases suffering from tuberculosis has been neglected in many institutions. It should not be necessary to suggest that such cases have no place in a ward with other patients who have not contracted that disease, and yet in many of our large and important hospitals there are no separate buildings for that purpose. It has been shown by statistical studies that persons suffering from

dementia praecox have an unusual and remarkable susceptibility to tuberculosis. Unfortunately, it has never been possible to completely segregate the epileptics in our public hospitals for mental diseases. They constitute a special problem and should receive a different diet as well as an entirely different type of treatment. Their presence in the wards with mental cases is highly detrimental to both. This is equally true of drug cases and mental defectives, and especially the so-called defective delinquents.

There are many reasons why every hospital of any consequence that is engaged in the care of mental diseases should be provided with a well trained and experienced pathologist. Examinations of urine and sputum must be made daily. Widal tests are sometimes necessary for the diagnosis of typhoid fever. Analyses of water and milk should be made at frequent intervals. Bacteriological vaccines should be available at any time. Only laboratory investigations can throw any light on the source of the frequent infections which are found in large institutions. Diphtheria is a disease which must be guarded against constantly. Lumbar punctures, Wassermann tests, the colloidal gold reaction, cell counts, etc., are daily necessities in a large hospital. We lose much information of value to us if autopsies are neglected. A definite program of pathological research work should be carried on in every hospital for mental diseases. It has been suggested frequently that the microscope has no part to play in studying the etiology of the psychoses and that they are purely functional in origin. Many of them are functional. It is nevertheless equally true that we have a definite pathological basis for the traumatic psychoses, the senile conditions, cerebral arteriosclerosis, general paresis, brain syphilis, cerebral growths, mental deficiency and many other brain and nervous diseases. The psychosis most clearly under-

stood from the standpoint of etiology, pathology, symptomatology and diagnosis is general paresis. Our definite knowledge of that condition was obtained entirely from the laboratory. Further information may be secured in the same way. While it is true that we have not had any great amount of success as yet with the treatment of general paresis with salvarsan, the positive knowledge that the disease is of syphilitic origin should encourage us in our efforts to solve the problem of curing it. Histological, pathological, bacteriological, chemical, clinical and psychological researches must be pushed vigorously if psychiatry is to keep pace with the general progress shown by modern medicine in other fields.

In connection with this subject some reference should be made to the general neglect of statistical studies. They should be based on detailed, accurate and exhaustive clinical records, which unfortunately are not now available to the extent that they should be. It is true that in a general way some progress has been made. The studies instituted by the American Psychiatric Association will ultimately tell us quite definitely the frequency of the various psychoses, the recovery and death rates to be expected, etc. We should not be satisfied with that alone. The great wealth of material which we have in our hospitals, together with the excellent clinical and laboratory facilities at our disposal, should enable us to accomplish much more. An analysis of our case records, if properly made, would give us definite information as to the clinical aspects of the mental diseases we are dealing with. These should be made the subject of exhaustive study by the scientific institutes and other research departments conducted by the various state authorities to an extent never yet undertaken or even attempted. If it cannot be done by the states it should be instituted by the federal government.

The fact that the field of influence of our public institutions should extend far beyond the walls of the hospital is one which has received general recognition only within the last few years. Every hospital has a large number of patients still within its legal custody but who have been allowed to return temporarily to their homes or occupations while still under observation pending their final discharge. These are now, to a very limited extent, under the supervision of social workers. The hospitals have unfortunately, owing to a lack of funds, never had a sufficient number of social workers to look after them properly. The hospitals as a rule now maintain out-patient departments where those who have been allowed to go home on visit or resume their occupations are encouraged to come for assistance and advice. The public is gradually learning to take advantage of this opportunity to obtain expert advice on matters relating to mental hygiene and secure professional opinions as to the disposition and treatment of members of the family showing symptoms of incipient mental disorders. This field of influence extends even further. Clinics have been established in various locations outside of the hospitals in the larger cities in several states. In New York they are conducted by state hospital physicians in Binghamton, Brooklyn, Buffalo, Plattsburg, Dunkirk, Jamestown, Olean, Salamanca, Poughkeepsie, Peekskill, Yonkers, Mount Vernon, Mineola, Newburgh, Kingston, Rochester, Middletown, Ogdensburg, Malone, Watertown, Utica, Schenectady, Ovid, Ithaca and New York City. Physicians and social workers are in attendance at all of these places. The last published report of the New York State Hospital Commission (1919) shows that 7,203 visits were made to these clinics during the year. Paroled patients made 5,102 of these, discharged patients 265 and others who had no connection with the hospitals at all, 1,836. In

addition to this the hospital social workers made 3,496 visits to paroled patients as well as four hundred and sixty-two visits to other patients for the purpose of preventing mental diseases. Situations were obtained for one hundred and sixty-seven discharged patients. An enormous amount of work was also done in history taking, etc. Numerous clinics have been established in Massachusetts by the Department of Mental Diseases.[2] During the year ending November 30, 1919, a total of 4,333 visits were reported. Of these 3,057 were first visits. The number reported by the various hospitals was as follows:—Worcester State Hospital 1,278, Taunton State Hospital 182, Northampton State Hospital 458, Danvers State Hospital 282, Westborough State Hospital 177, Grafton State Hospital 129, Gardner Colony 65, Monson State Hospital 70, Foxborough State Hospital 27, Massachusetts School for the Feebleminded 541, Boston State Hospital (Psychopathic Department) 2,112. Clinics were maintained in the following localities:—Athol, Boston, Brockton, Danvers, Fitchburg, Foxborough, Gardner, Grafton, Gloucester, Greenfield, Haverhill, Lawrence, Lynn, Malden, Medfield, Monson, New Bedford, Newburyport, Northampton, Pittsfield, Salem, Springfield, Taunton, Waverley, Westborough, Worcester and Wrentham.

This is a gratifying evidence of progress. There are indications of an awakening. The hospital treatment of mental diseases will eventually be conducted on a much higher plane and along lines more nearly comparable to those of the general hospital. A study of legislation relating to mental disease shows that efforts are being made very generally to make their treatment a medical problem rather than a legal question. It has been no easy matter to obtain treatment for mental diseases, as-

2. Fourth Annual Report of the Massachusetts Commission on Mental Diseases. Boston, 1920.

suming a desire on the part of the individual to take advantage of such an opportunity. A review of our legal enactments shows that as a general rule it means a formal application, properly verified, an elaborate examination by two qualified physicians, an order of commitment by the judge of a court of record, a legal notice and an opportunity for a hearing if one is demanded. Pennsylvania as early as 1883 made provision for the immediate admission of such cases as required it, pending the usual court procedure. As has been shown in another chapter, arrangements have been legalized in many states for the emergency reception of mental cases, at least for those persons who are known to be dangerous to themselves or others. Temporary care enactments have been written into the law in various communities, making it possible to keep mental cases under observation for a limited period of time. In a large number of states it is now possible for a person requesting treatment voluntarily to receive it on his own application without any other legal formalities. Perhaps the greatest advance is the custom, not so infrequent now, of sending persons held by courts under a criminal process to a hospital for observation as to their mental condition. The fact should not be lost sight of that it is still possible to find "insane" persons in jails, poorhouses and county institutions in many parts of the country. Worse than this, however, is the custom of delegating their care to police officers. Nevertheless, distinct progress has been made.

As has already been shown, a study of methods of care in this country indicates that every state has passed through several very definite preliminary stages. These may be summarized as follows:—

1. A period of home care only. During the colonial days mental cases were cared for at home or not at all. There was nothing else that could be done for them at the time.

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2. Confinement with criminals. In cases of unusual violence, dangerous persons were confined in jails, lockups and prisons. If necessary, under certain circumstances the law in some states even authorized the use of chains.
3. Almshouse care. There has been a time in practically every state when the poorhouse has been looked upon as the proper place for the insane.
4. Asylum care. As a result of the agitation of Dorothea Dix and others, mental diseases were eventually given custodial care in asylums.
5. Modern hospital care.

In 1894 Dr. S. Weir Mitchell [3] delivered the annual address at the semi-centennial meeting of the American Medico-Psychological Association in Philadelphia. It was a very painful occasion for many. His remarks may be summed up as a vigorous arraignment of the asylum methods of that day. He severely criticized the public, the state legislatures, boards of management and the hospital superintendents. His principal charge was that they were operating asylums along the lines of the past and were perfectly satisfied with what they had accomplished. He pointed out the necessity of properly qualified physicians, more scientific methods and modern treatment. "We have done with whip and chains and ill usage, and having won this noble battle have we not rested too easily content with having made the condition of the insane more comfortable?" It seems incredible that in the case records of that day he should have found no evidences "of blood counts, temperatures, reflexes, the eye-ground, color fields, all the minute examinations with which we are so unrestingly busy." One institution was unable to furnish Dr. Mitchell with a stethescope or an ophthalmoscope! One of his criticisms was that few institutions for mental diseases had a training school for nurses or any provisions for hydrotherapy. His last words were almost a prophecy: "Fifty years hence,

3. Mitchell, S. Weir: Address before the Fiftieth Annual Meeting of the American Medico-Psychological Association. Transactions, 1894.

when we must all have been swept away, another will possibly stand in my place and tell your history, and to him and the bountiful wisdom of time I leave it to be declared whether I was right or wrong." Dr. Mitchell's description of the asylums and their methods was bitterly resented. Who is there today who would not feel that he was fully justified?

The time has come when we must again look to the future and prepare for it. The purely custodial care of mental diseases has led to a dread of asylums on the part of the public. There are unfortunately too many hospitals that are asylums in everything but name. The establishment of psychopathic hospitals and psychiatric clinics and the way in which they have been welcomed by the public is suggestive. The problems of mental diseases, as far as possible, must be approached from a general hospital point of view and the psychiatric hospital of the future must have a modern equipment, an efficient staff and adequate facilities for the employment of the latest methods. Above all, the institutions must be such that they will be looked upon by the community not merely as a place to which the insane may be sent for final disposition, but as hospitals where the development of mental diseases may be prevented and where recoveries may be reasonably expected if the patient is given early treatment. This should be the principal object of the state hospital of the future. "The concept of its beneficent ministration to the mind diseased as any physical part of the human body," as Copp[4] has pointed out, "is just appearing in shadowy outline in public consciousness. The effacement of this barrier to early treatment is slowly but steadily progressing. Its pace will be hastened if every mental hospital continues to become, as speedily as may be, the real hospital in the

4. Copp, Owen: Barriers to the Treatment of Mental Patients. Mental Hygiene, April, 1918.

broadest sense, with emphasis laid upon its treatment function and subordination of its control relation within the reasonable limit of caution. The mental hospital and the general hospital are essentially alike. Mental factors predominate in the former, but are potent influences in the latter. The difference is one of degree only. All the imperative requirements of the one must be met by the other. They are supplementary agencies in curing and alleviating disease and must be, eventually, viewed in the same light and administered in the same spirit on even planes of humaneness and efficiency."

One thing should be made clear at the outset. A comprehensive and progressive program for further development means an expenditure of money. If the state hospitals are to fulfill their obligations to the community which they serve they must have more physicians. Provisions must be made for directors of clinical psychiatry, pathologists, internists, surgeons, dentists, and specialists of various kinds. Experts in hydrotherapy, massage and electrical treatments are necessary, as well as dietitians, industrial instructors, occupational teachers, specialists in reeducational work, psychologists, social workers, etc. Furthermore, they must be provided in sufficient numbers if anything is to be accomplished. As a matter of fact, no very great outlay of funds would be required in making a tremendous increase in efficiency. Although the institutional expenditures have increased enormously of late years, largely as a result of war conditions, increased costs, higher wages, etc., the amount actually invested in this humanitarian movement by the various states is not commensurate in any way with the results which are to be obtained. If we leave out of consideration everything except the saving in dollars and cents to be effected by methods which will in many instances render a protracted hospital residence unnecessary, the outlay involved would be well warranted. It should be

brought to the attention of the public that very few states are expending as much as one dollar per day for the maintenance of the individual patient. Modern hospital treatment of the highest type, under these circumstances, is manifestly impossible. The time has come when we should no longer be satisfied with the purely custodial care of mental cases.

CHAPTER V

THE HOSPITAL TREATMENT OF MENTAL DISEASES

The responsibility of the hospital for the future of the patient begins with his arrival at the institution and the ultimate outcome of the case often depends entirely upon the developments of the first few weeks of his residence in the wards. A complete understanding of the patient's mental condition, the prospects of an ultimate recovery and the line of treatment to be followed can only be determined by a thorough and accurate examination on admission. This constitutes the basis for all further procedure. If satisfactory results are to be obtained this task should be delegated to a medical officer who has had an extended psychiatric experience. For purposes of completeness, as well as uniformity, a definite plan should be followed. The form used in writing the initial history and in recording the results of the routine mental and physical examinations at the Boston State Hospital are described in full in the "Medical Staff Manual" which is furnished to all assistant physicians entering the service. This has been found to be of great assistance in the training of new men along proper lines and insures a uniformity of hospital records which is indispensable. In a general way the form of examination employed by Meyer and Kirby [1] for some years has been followed. As this scheme is fairly representative of the method of procedure used by hospitals for mental diseases through-

1. Kirby, G. H.: Guides for History Taking and Clinical Examination of Psychiatric Cases. 1921.

out the country it has been thought worth while to reproduce it in full.

HISTORY

Name of Physician: *Date:*

Name of Informant, Address, Relation to Patient:

It is often desirable to make a note on the intelligence and apparent reliability of the informant.

Residence and Citizenship of Patient:

Birthplace? Date of birth? Time in Massachusetts? If foreign born, date of arrival in U. S.? Naturalized or alien?

Family History:

It is not sufficient to ask simply the general question: Has any member of the family been insane or nervous? A great many persons will answer in the negative, whereas a detailed inquiry will often bring out a number of instances of nervous or mental troubles.

Specific inquiry must be made concerning the persons of the direct ancestral lines as follows:

(a) Paternal grandparents—nervous or mental disease?
(b) Maternal grandparents—nervous or mental disease?
(c) Father: Age, nervous or mental disease, alcoholism? If dead, age at death and cause of death?
(d) Mother: Age, nervous or mental disease, alcoholism? If dead, age at death and cause of death?
(e) Number of children in family (brothers and sisters of patient). Nervous or mental trouble in any of these besides patient? Psychopathic personality, alcoholism, criminality, etc.?
(f) Collateral branches: mention any known cases of insanity or nervous diseases in uncles, aunts or cousins.

PERSONAL HISTORY OF PATIENT

1. *Early Development:*

Birthplace and age, unusual incidents attending birth, retardation in talking or walking, infantile convulsions, night terrors, fits of temper, etc.—Severe illness or infectious diseases in infancy or childhood—Sequella? Frights, shocks or injuries?

2. *Education, Intellectual and Moral Development:*

Educational opportunities, time spent in school, interest in studies, progress, marks, behavior, truancy, etc.?

As an adult, regarded as bright, intelligent or dullminded? Well informed or ignorant? Reading, memory, judgment?

Moral responsibility, reliability, religious interests? Church affiliations?

Criminal traits, tramp life, police record?

3. *Sexual Life:*

Precocious interests in childhood, masturbation, abnormal practices, assaults or seduction?

Love affairs and disappointments? Age at marriage or reasons for single life. Moderate or excessive sexual desires, irregularities or prostitution.

Miscarriages, number of children, date of birth of youngest? If barren, what explanation; what effect on patient?

Frigidity, loss of power, refusal of partner, infidelity, measures to prevent conception. Treatment of partner, abuse, separation, divorce.

Perversions, abnormal methods of gratification with same or opposite sex.

In women, unusual symptoms at menstrual periods; age at menopause, nervous symptoms accompanying climacterium?

4. *Diseases and Injuries:*

Any previous nervous affection or symptoms, such as headaches, nervous prostration, chorea, epilepsy, hysterical attacks, etc.?

Mention severe infectious diseases and sequella, if any. Inquire concerning tuberculosis, rheumatism, heart disease, nephritis, etc.

Venereal disease, *syphilis and gonorrhea*, full account, if possible, of how acquired, age, treatment and after affects.

Severe injuries, particularly head traumata, should be described as regards their immediate and subsequent effects.

5. *Occupation:*

Kinds of work undertaken, ambition, efficiency, wages, etc. Length of time in different positions, reasons for change, etc.

6. *Alcoholism and Other Toxic Influences:*

Intemperate, moderate or total abstainer? If intemperate, age at which drinking began, apparent cause of same, kind of beverage consumed and approximate amounts. Periodic or steady drinker? Usual reaction to alcohol?

Inquire about attacks of neuritis, delirium, hallucinatory episodes, suspicions, ideas of jealousy.

Other toxic influences: Drug habits, occupational poisons, lead, arsenic, phosphorus, mercury, etc. Illuminating gas poisoning, nicotine intoxication.

7. *Mental Make-up or Type of Personality:*

Very important because certain of the non-organic psychoses appear to be a further development of mental traits or tendencies early recognized as personal peculiarities or deviations from the normal. In addition to the points already covered under the preceding headings, the following important types should always be borne in mind and appropriate inquiries made:

Manic make-up: Lively, active, sociable, pushing, talkative, cheerful, optimistic; may be domineering, irritable and inclined to cruelty; sometimes not very efficient, may be noted as changeable, lacking in persistence, concentration and application. May show transient blue spells or lowering of spirits.

Depressive make-up: Gloomy, worrisome, blue natures who feel continuously inhibited or restrained and unable to make decisions; easily discouraged.

Cyclothymic make-up: Emotionally unstable, either up or down, have blue spells or are unduly cheerful and care-free.

Shut-in make-up: Shy, retiring, self-conscious, bashful, quiet, secretive, seclusive and unsociable. Lack of interest in opposite sex or definite aversion; often prudish and over-particular. Unusual religious interest frequent. Inclined to day-dreaming, show fondness for the abstract and mystical. Odd habits, hobbies or cranky pursuits are common.

Paranoid make-up: Mistrustful, suspicious, tend to misunderstand; unduly sensitive, feel discriminated against and have feelings of self-importance. (These traits may be related to shut-in tendencies.)

Other types of make-up include the psychasthenic, neurasthenic and hysterical; also the mentally retarded or undeveloped (feebleminded).

8. *Previous Attacks of Mental Disorder:*

Obtain dates, places where treated, apparent cause, duration of attacks and general character of symptoms.

9. *Precipitating Cause of Present Psychosis:*

Try to determine what occurrence or situation appeared to bring about the mental breakdown. Emotional strains, excitement, quarrels, worries, griefs, disappointments, sexual episodes, separation, deaths, childbirth, etc., financial loss, overwork, physical disease, etc.

10. *Onset and Symptoms of the Psychosis:*

Take as far as possible a spontaneous account beginning with date when first symptoms were noticed in the patient. In this connection particular attention should be given to changes in behavior, in mood, in manner of speech, in attitude towards others and towards work.

Appearance of suspicious, unusual interests, peculiar ideas and delusions?

Hallucinations in various fields and reaction to them?

Obtain as much as possible regarding trend of patient's ideas, topics of conversation and content of hallucinations. What did voices say? What was seen in visions?

Forgetfulness, impairment of memory, loss of orientation and clouding of sensorium.

Always inquire regarding suicidal inclinations or attempts, threats of violence, assaults or homicidal tendencies.

Compare informant's statement with those given in the commitment certificate.

What treatment was given at home? Name of physician in attendance?

Date on which patient was taken to hospital.

PHYSICAL EXAMINATION

I. *GENERAL TYPE, APPEARANCE AND CONDITION:*

1. Weight (with or without clothes).
2. Height and general frame.
3. Malformations (wherever possible state the origin); asymmetries of skull, face, body, spine, thorax; form of palate (low, high, asymmetrical, saddle or V-shaped, longitudinal torus).

Ears (adherent lobules, prominent anthelix, satyr-points, large, angle, asymmetry, length, etc.).

Abnormalities of hands, feet, sexual organs.

4. Color of the skin.
   Color and quantity of the hair.
   Color of the eyes.
   General complexion.
5. General nutrition (panniculus and muscles).
6. Condition of the skin and mucous membranes; anemia, jaundice, dropsy, pallor, flushing and cyanosis; eruptions (describe in detail). Trophic disorders.
7. Scars, bruises and moles (size, location, color and origin).
8. Evidence of syphilis: scars, including those of the penis, back of tongue (patches devoid of villi and fissures) and palate; tibial crests; glands of elbow, groins and neck.

9. Signs of gout and rheumatism, goitre or nodes of the thyroid, etc.

10. Temperature, general, and various parts of the body (both sides if indicated as in hemiplegia).

II. *NERVOUS SYSTEM:*

1. *General and subjective sensations and facial expression:*

General feeling of well-being or exhaustion, general complaints, weakness, etc.

Vertigo: (constant, occasional, or occurring when the patient walks, or in the dark).

Headache: Whole head or limited space; frontal, vertical, occipital, unilateral, bilateral, deep or superficial; constant or periodic, aggravated at night or by some special cause, as with heat, with or without tenderness of head or spine to touch or pressure. Backache (general or localized).

Ovarian, infra-mammary, lumbar and vertex pains (in hysteria).

Neuralgic pains: (fifth nerve, intercostal nerves, sciatic nerve, with pain points, etc.) and muscular pains.

General or wandering pains: Pains in bones (legs) afternoon or night. Girdle pains. Precordial pains (with or without anxiety).

Zones of hyperesthesia: See below.

2. *Eyes:*

Expression: lids: obliquity, mongol type, lagophthalmus, protrusion of eye-balls (with or without the Graefe symptom), ptosis; spasm of palpebral muscles.

Movement of eyes, nystagmus, strabismus (divergent or convergent); position and extent of movement of the eyes; double vision (in what direction does the second object move and incline?).

Weakness of the internal rectus (in close focussing).

Conjunctiva, lachrymal canal. Scars of cornea. Arcus senilis. Reflectory iridoplegia.

Size and form of pupils. Residuals or formation of adhesion of iris. Contraction of iris on exposure to strong light; on accommodation (for near vision) and after shutting the eye.

Imperfect sight (reading print), improved or not by glasses, dimness of sight, limitation of field of vision, scotoma, hemianopsia, loss of color sense; anomalies of refraction. Condition of apparatus (cornea, lens, vitreous body). Ophthalmoscopy where indicated (for choked disc, optic atrophy, lesions of the fundus). Field of vision where indicated and possible (reversal of color fields in hysteria; scotomata).

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3. *Ears:*

Discharge, otoscopy. Defect of hearing on one or both sides (use watch and tuning fork).

Conduction through skull. Tinnitus aurium (auscultation for actual sound, over the head).

4. *Taste:*

Test separately the anterior two-thirds of tongue and the posterior third with weak solution of sugar, quinine, acid, salt.

5. *Smell:*

Test each nostril with oil of cloves, bergamot, peppermint, wintergreen and lemon. Note the actual answers.

Parosmia. Put down the actual extent of discrimination and recognition, with explanation of defect (mental, local, or nervous).

6. *Cutaneous Sensibility:*

1. Tactile sensibility (use the finger-tip, feather, or pin). Compare both sides of face, arms, hands, fingers, breasts, inner and outer aspects of thighs and legs. (Never omit the ulnar side and the area outside and above the knee). Sole and dorsum of feet.

2. Localization of touch (time and space) and tickle.

3. Sensibility to pain (cautious pricks with a pin, localization in time and space), with or without the attention of the patient.

4. Sensations of heat and cold (cold water and warm water in a glass tube).

(a) Sense of position: See below.

(b) Stereognostic sense.

5. Subjective sensations (formication, feeling of needles and pins, numbness).

6. Tenderness of nerve trunks and muscles on pressure and percussion. The distribution to be noted on the drawings of the body surface.

7. Biernacki's sign (analgesia of the ulnar nerve); anesthesia of eye-ball; of testicles.

7. *Vasomotor and Trophic Conditions:*

Salivation, seborrhea.

Cyanosis or pallor; scaliness or loss of hair; change of nails.

Blushing, dermatographia. General or localized perspiration. Temperature of paralyzed or anesthetic parts.

8. *Motor Functions:*

Mobility of facial muscles (laugh) (wrinkle the forehead and the nose; move the ears; show the teeth and shut the eyes); tongue; palate.

Muscles of the neck, trunk and extremities; gait.

Functions of the successive segments: In case of paresis or paralysis define the limits of the condition and indicate the results of the following tests: For loss of power: for the coordination of movement (writing, buttoning coat); for muscular sense (discriminating difference in weight; with eyes shut tell the position of the limbs and show with one side the position of the other). Balancing power: (walking along a straight line, stand upright with heels and toes together and eyes closed).

Never forget the test of equality of grip, flexor and extensor strength of elbow, knees and toes. For test of weakness of one lower extremity have both lower extremities raised and hold to fatigue limit. The weaker limb will sink a certain number of seconds before the other.

9. *Reflexes:*

1. Deep reflexes.

Masseteric: elbow, wrist, knee-jerk with or without Jendrassic, with clonus, or contralateral adductor reflex, knee-cap reflex; ankle clonus and Achilles tendon reflex.

2. Superficial reflexes:

Plantar (with full description as to the Babinski reflex), gluteal, cremasteric, abdominal, epigastric, scapular, corneal, palmar, sneezing.

10. *Condition of the Paralyzed Muscles:*

Firm and of good tone, or flaccid or deficient in tone. Rigid and contracted. Note attitude of limb and the limitation of the motion, active and passive. Atrophy, hypertrophy, electric reaction of nerve and muscle (galvanic and faradic irritability when required).

11. *Fibrillary Twitching:*

Its distribution.

12. *Tremor:*

Of what parts; rhythm, intensity, rapidity. Condition at rest during sleep; when first observed. Condition during motion, how influenced by will.

13. *Organic Reflexes and Their Control:*

Bladder; delay of micturition. Dribbling from empty bladder, from distended bladder. Peculiar sensations on micturition.

Sexual reflexes: Frequent involuntary contraction and evacuation.

Defecation: Is the patient conscious of evacuation?

14. *Convulsions:*

Distribution: Extending over head, trunk, extremities, one side, one member.

Character: Which parts first and most attacked, and how do the waves of the tonic and clonic spasm spread; what movements predominate?

Average duration, frequency, occurring night or day, or early in the morning.

Breathing; pupils; vasomotor condition; froth and bites.

Sphincters: Consciousness totally or partially lost.

Aura.

Equivalents: with or without what automatic movements.

Physical and nervous symptoms before and after attack.

Hysterical attacks.

III. *THORACIC ORGANS:*

Respiratory organs: Is there any difficulty of breathing, permanent or in attacks? Sleep with mouth open? Any pain on deep inspiration? Any cough or expectoration (where from). Nose and larynx. Shape of chest. Frequency of respiration. Respiratory movements. (Compare both sides in deep inspiration and expiration).

Lungs: Percussion. Auscultation. Expansion.

In case of dullness or other abnormalities: Fremitus.

Contents of pleura.

Circulatory organs: Is there any palpitation? In attacks? Due to what? Subjective sensation of arhythmia? Heart: The impulse seen and felt in what area? Relative dullness (right, upper and lateral borders). Sounds and bruits (localized). Pay special attention to muffling of the first sound, to duplication; to change of murmurs in inspiration and by position. Rhythm and accentuation.

Radial pulse: Rate, quality, on lying and sitting and standing. Special attention to variability through position or motion or exertion. If desirable, sphygmogram.

Condition of radial, brachial and temporal arteries.

Arcus senilis.

Sclerosis of veins. Varicosities.
Blood pressure.

IV. *DIGESTIVE AND ABDOMINAL ORGANS:*

Appetite, thirst, anorexia, nausea: Relative to quantity and quality of food. Vomiting (time and form), eructations and brashes; pain (locality, irradiation and time).

Mouth and teeth. Fetor. Fauces and pharynx. Stomach (position, etc.). Digestion. Movement of bowels. Any subjective feeling of obstacle? Form of stools. Flatulence and distensions. Hemorrhoids and fistulas.

Liver and spleen.

If indicated, examination of stomach contents.

V. *URINARY APPARATUS:*

Micturition: Urine, amount in 24 hours, specific gravity, color, reaction, odor, albumen, sugar and indican, etc.

Macroscopic and microscopic examinations of sediment, clouds and threads; casts, epithelia, erythrocytes, leukocytes, bacteria, threads, crystals, amorphous substances.

VI. *GENITAL ORGANS:*

Scars of genital organs. Menstruation: regular; profuse; scanty; accompanying symptoms.

Discharges at intervals; constant; profuse; color.

Internal examination.

In men: Frequency and character of the sexual functions. Frequency of emissions, their occasional exciting causes and correlated symptoms.

Diagnostic summary and indications for further observation and treatment.

MENTAL EXAMINATION

I. *ATTITUDE AND MANNER:*

General appearance of the patient, adaptation to surroundings, patient's general attitude and behavior, attention and cooperation. Note any peculiarities of conduct or demeanor (peculiarity of dress, mannerisms, grimacing, affectations, etc.). Note the manner, gestures, form of intonation, rapidity or slowness of speech, or special peculiarities. Facial and general expression (sadness, anxiety, fear, restlessness, excitement, etc.). Psychomotor retardation or excitement (violence, destructiveness), care of person (whether cleanly or untidy, etc.).

II. *STREAM OF MENTAL ACTIVITY:*

1. *Flow of thought:* Give sample of spontaneous expression or productivity, if possible. If not, give reaction to questioning. Show any disturbance of train of thought (retardation, confusion, incoherence, poverty of ideas, volubility, flight of ideas, distractibility, rhyming, desultoriness, circumstantiality, perseveration, fabrication, coinage of words, verbigeration, echolalia).

2. *Abnormalities in the motor reactions:* Negativism, catalepsy, echopraxia, stereotypy, automatism, mutism, etc. Show loss of initiative, lack of spontaneity or slowness in action, etc.

III. *EMOTIONAL TONE:*

Moods and affects. Show the presence of cheerfulness, laughter, mischievousness, excitement, exaltation, depression, anxiety, fear, perplexity, tendency to be startled, irritability, constraint, confusion, indifference or apathy. Show sensitiveness, seclusiveness, suspicion, emotional instability or suggestibility.

IV. *MENTAL CONTENT:*

1. Hallucinations; hearing, vision, taste, smell, sensation, etc.
2. Delusions; persecution, suspicion, infidelity, poisoning, electricity, hypnotism, mind-reading, self-accusation, grandeur, etc. Show whether permanent or transitory, systematized or unsystematized.
3. Illusions.
4. Obsessions, phobias, etc.
5. Nature of sleep, dreams, etc.

V. *ORIENTATION:*

Time, place and person.

VI. *MEMORY AND MENTAL GRASP:*

1. Recent past.
2. Remote past.
3. Retention of school knowledge.
4. Fund of general information.
5. Data of personal identification.
6. Counting and calculation.
7. Reading and writing.

VII. *INSIGHT AND JUDGMENT:*

The judgment concerning the situation, insight concerning physical and mental health and efficiency, financial status, plans in case of discharge? In discussion of abstract and complicated topics? To what extent is he sensitive to his own errors and to comments?

VIII. *SUMMARY:* Physical and mental.

IX. *DIFFERENTIAL AND PROVISIONAL DIAGNOSIS.*

The question as to what benefit is to be derived by the patient from a residence in a hospital for mental diseases is one which is often raised by relatives and friends. They are quite inclined to feel that if no medicines are being prescribed nothing is being done for the patient and that he could be cared for just as well at home. In considering this question it should be borne in mind that the persons under treatment in a hospital for mental diseases are there, either because they appreciate the need of hospital care themselves, or because, as a result of mental disorders, they are incapable of directing their own affairs, or are, in the eyes of the law, dangerous to themselves or others. Their property and other legal interests must be protected during their period of incompetence. Such persons are liable, if not adequately safeguarded, to enter into improper contracts or make legal conveyances that mean financial ruin to themselves as well as others. Unfortunate sexual irregularities frequently occur. Conduct disorders of various kinds are to be expected and a tendency towards criminal acts is common to several of the psychoses. It is a well-known fact that every mentally unbalanced individual is potentially dangerous, no matter how harmless he may appear. The suicide rate of the country as shown in one hundred of the largest cities has not fallen below fourteen per hundred thousand of the

sane population at any time during the last twenty years. The homicide rate in thirty-one of our large cities has not dropped below eight per hundred thousand of the population since 1909. Many of these crimes were undoubtedly committed by persons who should not have been at large and who were not responsible for their acts. The most important benefit derived by the patient in the hospital is the constant personal supervision given him by experts throughout the twenty-four hours of the day, whether he is asleep or awake. He gets the benefit of regular hours of rest and exercise, a properly regulated diet adapted to his needs, a sufficient amount of fresh air, and amusement and entertainments suited to his mental condition. He receives competent medical, dental and nursing care and is provided with opportunities for occupying himself in many different ways. Reading matter is always available for those who care for it. Even religious services are held for his benefit.

The tendency of late years is to dispense with the use of drugs as far as possible and resort to other methods of accomplishing the same results. One of the most important therapeutic procedures in common use in the modern hospital for mental diseases is hydrotherapy. This should be used intelligently if any results are expected. Sending the patient to the hydriatic department where identically the same treatment is applied to all cases whether of excitement, depression, exhaustion, etc., by an attendant who has no knowledge of either medicine, psychiatry or nursing may be referred to as the application of water to the exterior, but it is not hydrotherapy. Hydriatic treatments should be prescribed by a physician who has a thorough familiarity with that particular therapeutic procedure and every patient should receive the form adapted to his individual needs. The treatment should be given by an expert hydrotherapist. The equipment should provide for hot air, electric light,

vapor and saline baths, Sitz baths, circular, rain, fan, jet and Scotch douches, dry, hot and cold packs, etc. Much can be accomplished by tonic, stimulating and eliminative therapy. Sedative treatments are much used in hospitals for mental diseases. The hot air bath[2] is given at from 134 to 170 degrees Fahrenheit for from four to ten minutes, preceded by a foot bath at from 104 to 110 degrees. The patient enters the electric light and vapor bath at the room temperature, the baths being continued from four to eight minutes usually. The needle spray is given at a temperature ranging from 96 to 102 degrees, with a pressure of from twenty to thirty pounds, and continued from one to two minutes. The fan douche starts at 90 degrees, is reduced gradually with a pressure of from twenty to twenty-five pounds and is continued for from fifteen to twenty seconds. The jet douche is first used at 90 degrees and gradually reduced, with a pressure of from fifteen to twenty-five pounds, for from ten to twenty seconds. The Scotch douche is used at a temperature of 80 degrees alternating with 110, with from fifteen to thirty pounds pressure. It should be used with extreme care. The same is true of vapor douches. The saline bath contains five pounds of ordinary salt to sixty gallons of water at a temperature of 94 degrees and is continued from ten to thirty minutes. The dry pack is usually continued from twenty to forty-five minutes, although it may be used longer with safety. In the use of the hot blanket pack the inner blanket is wrung out of water at from 140 to 160 degrees and must be applied with great care. Depending on the condition of the patient, etc., the cold wet pack is given with sheets wrung out of water at a temperature ranging from 50 to 60 degrees, although lower temperature may be used. "Neutral" wet sheet packs are often used

2. Wright, R. B.: Medical Staff Manual—Hydrotherapy. Boston State Hospital. 1920.

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at a temperature of from 100 to 116 degrees for approximately three-quarters of an hour, as preparatory treatments. These measures should never be attempted by anyone who has not had an extended practical experience. Much can be accomplished by hydrotherapy in the alcoholic and toxic conditions, infective and exhaustive psychoses, manic excitements, involutional melancholia, hysterical and neurasthenic conditions, as well as in occasional cases of dementia praecox. Occupational therapy has been used to great advantage in connection with the hydrotherapeutic treatments.

In the reception service and in the buildings for the noisy and violent cases ample facilities should be at hand for the continuous bath treatments. Pack rooms are also desirable. There is no means at our disposal equal in any way to the efficacy of the continuous bath in controlling excitements. The patient is usually kept in the tub from five to eight hours at a temperature varying from 92 to 97 degrees and averaging 96 degrees. In some hospitals they are kept in the tubs for periods of from two to three weeks. The continuous bath is of no value unless it means what the name implies—the continuous submersion of the body in water. In dealing with very excited cases this necessitates the use of a tub cover and a hammock, although sheet coverings are often used satisfactorily. Not much is to be gained by the tub bath if the patient is to be allowed to get out and in as he pleases and only come into partial contact with the water. The continuous bath is not without drawbacks. There is danger of chilling, scalding and drowning either by accident or with suicidal intent, etc. Too much care cannot be exercised in the supervision of the bath rooms. Every tub room in the Boston State Hospital has the following rules conspicuously displayed:—

THE CONTINUOUS BATH ROOM

1. The nurse on duty in the bath room will be held personally responsible for the safety of the patients and must be thoroughly familiar with these rules. The nurse must never leave the room unless relieved by some other nurse. Eternal vigilance is necessary to prevent the chilling, scalding or drowning of the patient.
2. Patients are to be given continuous baths only on the written order of a physician.
3. Patients going to or from the bath room must wear a nightdress or bathrobe and slippers when not fully clothed.
4. Tubs not in good condition or not properly equipped must not be used.
5. Only patients under treatment are allowed in the room.
6. Toilet each patient just before the bath. Patients may be removed from the tub for toilet purposes when necessary.
7. In preparing for the bath, warm the tubs with hot water and then regulate the temperature so that a small amount of water at 96 degrees will be flowing continually.
8. Adjust the hammock to the tub and place the patient in the bath resting on the hammock. Adjust the cover to the tub, with patient's head through the neck opening unless sheets or other covers are used.
9. The temperature of the water must be taken in each tub at least every half hour. Feel the water in each tub frequently. If it seems too warm or too cold, take the temperature at once. If you find it varying from 96 degrees adjust to that temperature by adding a small amount of hot or cold water. If the temperature cannot be kept between 95 and 97 degrees, let the water out of the tub and remove the patient immediately. The physician in charge and the chief engineer should be notified at once. The bath tub key must be fastened to a special cord worn by the nurse on duty. It must be delivered to the nurse in charge of the ward when the bathroom is closed.
10. If the patient is very noisy, restless or flushed, fasten an ice poultice to the tub cover so that as the patient lies in the water the back of the head or neck will rest upon it. Replace with a fresh one before the ice is entirely melted.

    Intensely excited patients may have cold compresses to the neck, changed often, for periods of 20 minutes.

    Sponge all faces with cold water once an hour.
11. Patients are to be permitted to drink as much cool water (not iced) as they desire, and must be offered a drink at least once an hour.

12. The nurse must record the following: 1. The water temperature and the patient's pulse rate (temporal or facial) every half hour. 2. The amount of sleep in the bath. 3. Bowel movements. 4. Nourishment. 5. Medicine administered. 6. Hours of each patient in the tub. 7. The name of each nurse and the exact time of going on or off duty.
13. In case the patient shows symptoms of fainting or convulsions, makes any attempt at drowning, shows suicidal tendencies or becomes too violent to remain in the tub with safety, let the water out and remove the patient at once.
14. In the event of any serious accident or injury or sudden illness the patient should be removed from the tub at once and the physician notified.
15. Patients are not to be allowed to feed themselves but must always be fed by the nurse. The inlets to the bath may be closed for twenty minutes while patients are being fed.
16. During the day the warming closet must always contain one sheet and one towel for each patient in preparation for drying. It must also contain washable rugs for patients coming out of the tubs to step upon; also two blankets for emergencies.

    At least one hour before the patients are to be removed from the baths the garments they are to wear after the bath must be placed in the closet.
17. The temperature of the room should be kept as nearly as possible at 76 degrees Fahrenheit. If the temperature of the room cannot be kept above 68 degrees discontinue the bathing.

When the care and treatment of mental diseases was first undertaken in our state institutions it was soon found necessary to take advantage in every way of such material assistance as could be offered by the more intelligent class of ablebodied patients in carrying on the routine work of the hospital. There were never employees enough to dispense with their services. In this way it came about that they were employed in the farms and gardens, assisted with the kitchen and housework, shared the tasks of the nurses and attendants in the wards and were busily engaged in almost every department of the hospital activities. It became apparent that occupation, undertaken originally for purely economical

purposes, constituted one of the most important therapeutic agents at the disposal of the institution. The next step was the development of industries. Patients were taught by instructors to make clothing, underwear, stockings, shoes, brooms, mats, brushes, mattresses, furniture and many other useful products needed by the hospital. The end products were in every instance utilitarian. These accomplishments led to a still further development—purely occupational in character. Women were encouraged to take up such activities as rug making of all varieties, basketry, weaving, crocheting, embroidery, and needlework of every description. Men usually make towelling on looms, weave rugs, renovate mattresses, do repairing of all sorts and manufacture small articles which interest the masculine mind. Brass work, clay modelling and making jewelry of various kinds have been extensively employed.

All of these forms of employment mean, of course, that the patient must leave the ward and go to some place designed for the purpose. The others, however, have not been overlooked and occupational therapists, who devote their entire time to stimulating the interest of the patients who cannot leave the wards, on account of their mental or physical condition, in some absorbing and diverting occupation, are an important part of the personnel of every institution. No other form of treatment employed in hospitals for mental diseases has been so productive of results. It is interesting to note that the medical officers of all of the forces engaged in the recent war found that occupational therapy was of great value in cases of shell shock and war neuroses.

The highest development perhaps of occupational therapy has been in its application to strictly reeducational work in dementia praecox. This consists in a graduated and systematized reeducation of interests in apparently deteriorated individuals. The success of

these efforts depends largely on the fact that very simple lines are followed at first. The patients are interested in marching to music, simple drills, calisthenics, games, basketball and purely physical exercises. Some can be induced to sort out raffia and ultimately take part in basket making. Others cut out pictures or put puzzles together. The women sometimes are willing to do plain sewing or make paper flowers. They progress by easy stages to more advanced and elaborate undertakings leading eventually to occupational work in the wards or possibly in the industrial rooms. Some of the apparently most hopeless cases have, as a result of these reeducational efforts, been able to return to their homes greatly improved. The mental improvement goes hand in hand with a resumption of their interests in their former work or some new occupational venture which may have proved attractive.

Every effort should be made to avoid the possibility of long hours of idleness in the wards. When not actively employed in occupational work, ward games, reading, etc., the patients should be taken out of doors for fresh air and exercise. This, of course, suggests the necessity and importance of attractive surroundings. Nothing can be more depressive or detrimental to the welfare of the patient than a prisonlike appearance either inside of the buildings or on the grounds. The successful operation of a hospital is dependent in no small measure on the amount of attention devoted to the preparation of food. There must be a general dietary for the active ablebodied class, one for the working patients, an entirely different one for the tuberculous and epileptic cases and a special diet for the strictly hospital wards. In an institution of any size this requires the constant supervision of several dietitians.

The advances of recent years in our knowledge as to the etiology and nature of general paresis have led

to the introduction of highly specialized therapeutic methods in the treatment of that disease and of cerebrospinal syphilis. This is an important feature of the work of our hospitals at the present time. The interest recently shown in the study of the endocrine system has already brought about a new line of therapy which is destined to receive much attention in the future.

Even the amusements necessary for the individual are given special attention in the treatment of mental diseases. This refers not only to methods of recreation and diversion in the wards day by day but includes moving picture shows, dances and various other special entertainments. Not the least important consideration is the patient's bodily health. This is often a determining factor in bringing about a restoration of mental integrity. It very often happens that there are diseases of the eye, ear, nose, throat, skin, nervous system, etc., which may require attention. Dental, surgical, gynecological and other special treatments sometimes prevent ordinarily acute and recoverable psychoses from terminating unfavorably.

In a word, the modern hospital treatment of mental diseases may be said to consist of a direct personal supervision of the mental and physical hygiene of the patient, supplemented by such specialized therapeutic procedures as may be indicated in the individual case.

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CHAPTER VI

THE DEVELOPMENT OF THE PSYCHOPATHIC HOSPITAL

As has already been shown, the modern hospital treatment of mental diseases in this country is a development which represents the progress of nearly two centuries. Satisfactory as this has been in many respects, it nevertheless leaves much to be desired. All indications point to much greater accomplishments in the future. We are emerging from an era of custodial care and entering one of prevention, scientific investigation, and highly specialized treatment along entirely different lines. The interest of the public has been aroused in a subject which has heretofore been one to be avoided by common consent. Mental hygiene societies are no longer viewed with suspicion and curiosity. We are approaching a time when mental diseases can be dealt with, as other conditions are, without prejudice or unjust discrimination. Psychiatric wards promise to become integral parts of a completed medical organization. Psychopathic hospitals will soon be found in all of our great centers of population. The outlook for specialized institutes for purely research purposes, unfortunately, is not so encouraging at this time.

At last there is some evidence of progress in the teaching of psychiatry in medical schools, hospitals and clinics, although only a beginning has been made as yet. More noteworthy advances have been made in other countries. The appointment of Heinroth as a professor of psychiatry at Leipsic in 1811 promised developments which did not materialize to any great extent for

many years. According to Sibbald,[1] psychiatric wards or clinics were established at Würzburg in 1833, Jena in 1848, Vienna in 1853, Berlin in 1865 and at Göttingen in 1866. Scholz made provision for observation wards in a general hospital in Bremen in 1875. Fürstner opened a psychiatric clinic at Heidelberg in 1878. Hitzig accomplished the same thing at Halle in 1891 and Siemerling at Kiel in 1901. The inception of the modern psychiatric clinic has generally been attributed to Griesinger.[2] In his preface to volume one of the "Archiv für Psychiatrie und Nervenkrankheiten" in 1868 he advocated the establishment of small hospitals in cities for the intensive treatment of acute and recoverable mental cases. He recommended a large staff of physicians and accommodation for from sixty to eighty patients, according to the needs of the community, but not to exceed one hundred and fifty under any circumstances. "In close connection with the organization of such institutions there is a crying need and a new, most important interest—the question of psychiatrical instruction. This is absolutely indispensable." This he proposed to accomplish by establishing a highly specialized clinic to be maintained largely by the teaching staff of a university. Griesinger's ideas were eventually carried out in full by Ziehen in Berlin, Sommer in Giessen and Bleuler in Zurich. Perhaps nothing has had more to do with the development of psychopathic hospitals in the United States than the well-known clinic established by Kraepelin at Munich in 1905. It occupies a three-story building accommodating one hundred patients and cares for between fifteen hundred and two thousand cases annually. Hydrotherapeutic and electrical treatments are used ex-

1. Sibbald, John: Psychiatry in General Hospitals. Review of Neurology and Psychiatry. January, 1903.
2. Smith, Frank R.: Extracts from the Writings of Wilhelm Griesinger, a Prophet of the Newer Psychiatry. American Journal of Insanity, July, 1903.

tensively. A certain number of beds are reserved for research purposes. Psychological studies receive a great deal of attention. The out-patient department is a prominent feature. The teaching of psychiatry is one of the important purposes of the clinic. Kraepelin's methods have been followed rather closely here. The remarks made by Pliny Earle[3] in 1867 were almost prophetic in character. "Carbon agglomerated is charcoal, carbon crystallized is diamond. What charcoal is to the diamond, such, I believe, is the psychopathic hospital of the present compared with the psychopathic hospital of the future. . . . When the defects which I have mentioned shall have been thoroughly remedied by a comprehensive curriculum, a complete organization, a perfect systematization, an efficient administration, the charcoal now just ready to begin the process of crystallization will have become the diamond and the world will possess the psychopathic hospital of the future."

Psychiatric research was inaugurated in this country by the establishment of the Pathological Institute of the New York State Hospitals in New York City in 1896. Its original field of investigation was limited to the laboratory. The name was changed to "Psychiatric Institute" on the appointment of Dr. Adolf Meyer as director in 1902 and the establishment was removed to Wards Island, where it was provided with clinical facilities by the Manhattan State Hospital. It thus became the precursor of the psychiatric clinic movement in America. The observation wards for the examination and commitment of mental cases, at the Philadelphia Hospital (1890) and at Bellevue in New York City were probably the first of the kind in this country. In 1902 the first

3. Earle, Pliny: The Psychopathic Hospital of the Future. Address at the laying of the corner stone of the General Hospital for the Insane of the State of Connecticut, June 20, 1867. Utica, 1867.

psychopathic wards connected with a general hospital were opened by the Albany Hospital. Pavilion F, as it was designated, admitted 3,132 patients during its first twelve and one-half years. These included persons awaiting examination and commitment, voluntary patients and cases of delirium, stupor, etc., transferred from other wards of the hospital. Of 1,038 cases admitted during a period of six years, only 17.6 per cent were committed to state hospitals. In a total of 1,855 cases, twenty-five per cent were found to be suffering from some form of alcoholism and twenty-six per cent from chronic mental conditions, while thirty-five per cent were cases of the acute and recoverable class. About fourteen per cent were psychoses associated with renal conditions, neurasthenia, hysteria, tuberculosis or traumatism.

The Psychopathic Hospital at the University of Michigan, the first of its kind on this continent, was established at Ann Arbor in 1906 as a direct result of the activities of Dr. William J. Herdman. The objects and purposes of the hospital were shown by the provision of the legislature for the appointment of "an experienced investigator in clinical psychiatry, who shall be placed in charge of the psychopathic ward, whose duty it shall be to conduct the clinical and pathological investigations therein; to direct the treatment of such patients as are inmates of the psychopathic ward; to guide and direct the work of clinical and pathological research in the several asylums of the state, and to instruct the students of the State University in diseases of the mind." It was thus an integral part of the hospital of the University of Michigan but fully coordinated with the state institutions. A subsequent act of the legislature changed its status to that of a "State hospital, specially equipped and administered for the care, observation and treatment of insanity and for persons who are afflicted men-

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tally but are not insane." It also provided that a clinical pathological laboratory should be maintained for the benefit of the state hospitals. During a period of eleven years it admitted an average of 168.82 patients per year. Twenty-four per cent of these were voluntary cases. The psychoses represented were: manic-depressive insanity, twenty-four per cent; dementia praecox, seventeen per cent; paranoid conditions, two per cent; hysteria, seven per cent; psychopathic personality, two per cent; alcoholic psychoses, four per cent; morphine intoxication, one per cent; imbecility, two per cent; general paralysis, eight per cent; cerebral syphilis, one per cent; epilepsy, two per cent; senile psychoses, one per cent; cerebral arteriosclerosis, three per cent; unclassified conditions, five per cent; and not insane, two per cent. Seventy-four per cent of all the cases admitted were discharged after a residence of three months or less and eighty-two per cent after a residence of four months or less. Fourteen and eight-tenths per cent of all cases were discharged as recovered and 32.7 per cent as improved. Owing to the fact that it has only sixty-two beds at its disposal, the number of admissions is necessarily limited and cases are carefully selected.

The Psychopathic Hospital in Boston, the first institution of the kind established in this country as a department of a state hospital (The Psychopathic Department of the Boston State Hospital), was opened for the reception of patients in 1912. The purposes of the institution were very clearly shown by the Twelfth Annual Report of the Massachusetts State Board of Insanity (1910):—"The psychopathic hospital should receive all classes of mental patients for first care, examination and observation, and provide short, intensive treatment of incipient, acute and curable insanity. Its capacity should be small, not exceeding such requirement. An adequate staff of physicians, investigators and trained workers

in every department should provide as high a standard of efficiency as that of the best general and special hospitals, or that in any field of medical science. Ample facilities should be available for the treatment of mental and nervous conditions, the clinical study of patients on the wards, and scientific investigation in well-equipped laboratories, with a view to prevention and cure of mental disease and addition to the knowledge of insanity and associated problems. Clinical instruction should be given to medical students, the future family physicians, who would thus be taught to recognize and treat mental disease in its earliest stages, when curative measures avail most. Such a hospital, therefore, should be accessible to medical schools, other hospitals, clinics and laboratories. It should be a center of education and training of physicians, nurses, investigators, and special workers in this and allied fields of work. Its out-patient department should afford free consultation to the poor, and such advice and medical treatment as would, with the aid of district nursing, promote the home care of mental patients. Its social workers should facilitate early discharge and after care of patients, and investigate their previous history, habits, home and working conditions and environment, heredity and other causes of insanity, and endeavor to apply corrective and preventive measures."

The building has a capacity of one hundred and ten beds. The institution may be said to differ from other psychopathic hospitals in being an establishment essentially of the temporary care type, not designed primarily either for the reception or for the care and custody of obviously committable cases, but rather for the observation and treatment of incipient mental disorders as well as psychopathic conditions not properly coming within the scope of the state hospitals. It has been as a rule the policy of the court to commit directly to other

institutions for the insane all cases showing clearly the necessity of an extended hospital residence. The fact that only forty per cent of the temporary care cases have been committed shows that a preliminary period of observation before these cases are definitely disposed of is unquestionably warranted. The legal status of cases admitted may be described as follows:—1. Temporary care (not to exceed ten days); 2. Boston Police cases (Persons suffering from delirium, mania, mental confusion, delusions or hallucinations, or who come under the care or protection of the police); 3. Observation cases (for a period of thirty-five days, pending commitment); 4. Cases pending examination and hearing; 5. Emergency commitments (not more than five days); 6. Voluntary admissions; 7. Cases held under complaint or indictment.

An analysis of the work done by the Psychopathic Department from 1912 to 1920 shows a total of 14,922 admissions to the wards,—an average of 1,865 per year. Of these, 59.77 per cent were temporary care (10 day) cases, 18.56 per cent "Boston Police" cases, 1.38 per cent observation cases (thirty-five days), .50 per cent emergency cases, .61 per cent committed "pending examination and hearing," 1.02 per cent under complaint or indictment and 16.96 per cent were voluntary cases. The entire temporary care group, including all of the above classes except the voluntary and criminal cases, constituted 81.34 per cent of the admissions. It is interesting to note that the principal psychoses represented by the cases coming into the hands of the Boston Police are dementia praecox, alcoholic psychoses and mental deficiency. The number of emergency cases is very small, as is the number committed by courts for observation. The number of voluntary admissions, an average of 316 per year, constituting 16.96 per cent of the total,

is very significant as showing the response to be expected from the public to an opportunity for hospital treatment without the formality of any legal procedure. Of the 14,922 cases admitted between 1912 and 1920, 38.45 per cent were subsequently committed as insane and 3,797, or 25.44 per cent, were returned to the community as not requiring further hospital care or treatment.

It has been shown that the special field covered by the Boston Psychopathic Hospital consists of temporary care cases. The principal psychoses represented by 12,252 admissions of that class were as follows: alcoholic psychoses, 9.25 per cent; dementia praecox, 25.0 per cent; senile psychoses, 3.16 per cent; general paresis, 6.06 per cent; manic-depressive psychoses, 10.14 per cent; arteriosclerosis, 3.23 per cent; epilepsy, 1.85 per cent; and without psychoses, 20.63 per cent.

This latter class (without psychosis) is looked upon by some as constituting the most important field of a psychopathic hospital. It is exceedingly interesting to note the conditions which bring such individuals to the institution. An analysis of 1,430 cases shows the principal mental types represented to be as follows:—mental deficiency, thirty-four per cent; psychopathic personality, 15.17 per cent; hysteria, neurasthenia and other psychoneuroses, 11.2 per cent; epilepsy, 8.04 per cent; alcoholism, 6.08 per cent; conduct disorders, 4.2 per cent; syphilis, 2.03 per cent; organic brain diseases, 1.68 per cent; neurosyphilis, 1.26 per cent; drug addictions, 1.4 per cent; somatic conditions, 1.19 per cent, etc.

No less interesting and instructive is a study of the voluntary cases. An analysis of 1,807 admissions of this type shows the following distribution of psychoses: alcoholic psychoses, 5.64 per cent; dementia praecox, 18.43 per cent; manic-depressive, 6.81 per cent; involution melancholia, .99 per cent; senile psychoses, 1.11 per

cent; general paresis, 7.9 per cent; epilepsy, 1.05 per cent; psychoneuroses, 3.59 per cent; and without psychosis, 34.64 per cent.

The work of the out-patient service includes in a general way the study of cases referred to that department from the wards of the hospital or by its social service staff; cases referred by courts, schools, social agencies, and other institutions, as well as those sent by practicing physicians and individuals coming on their own initiative. The response on the part of the public to the facilities offered by the out-patient department is shown by the fact that 9,273 new cases were reported during a seven-year period, an average of 1,324.7 per year. Fifty-seven and six hundredths per cent of these cases were adults, 17.8 per cent were classified as adolescents, 24.25 per cent as children and .89 per cent as infants. The source of origin of these cases is exceedingly interesting. Four and eighty-seven hundredths per cent were referred to the out-patient service by courts; 4.65 per cent, by schools; 11.77 per cent, by hospitals; 9.77 per cent, by physicians; and 3.55 per cent, by individuals. Fifteen and five tenths per cent came from the wards of the Psychopathic Hospital; 9.96 per cent, from the social service department and 13.3 per cent came on their own initiative. The question as to why these cases are sent to an institution of the psychopathic hospital type can now be answered. Fourteen and fifty-two hundredths per cent were examined solely for the purpose of determining the existence of probable mental diseases and 21.88 per cent on account of suspected mental defects. Four and fifty-two hundredths per cent were sex offenders. In 8.64 per cent the only question at issue was the possibility of a psychoneurosis and in 7.97 per cent the purpose of the examination was to ascertain whether or not syphilis was present. The diagnoses show the nature of the cases encountered in an out-pa-

tient mental clinic. Four and eighteen hundredths per cent were cases of dementia praecox; 1.7 per cent of alcoholism; 2.26 per cent of alcoholic psychoses; 2.39 per cent of epilepsy; 15.72 per cent of mental deficiency; 9.0 per cent of psychoneuroses; 2.14 per cent of manic-depressive insanity; 2.09 per cent of psychopathic personality; 1.21 per cent of general paresis; and 2.94 per cent were unclassified. Two and thirty-two hundredths per cent were diagnosed as suffering from syphilis in some form and 6.27 per cent were either delinquent, defective, subnormal, retarded or distinctly feebleminded. In 3.76 per cent no disease was found, either mental or physical. The great bulk of these cases were diagnosed either as mental deficiency, psychopathic personality or epilepsy. The ultimate disposition of 2,741 cases, covering a period of two years, serves as an index of the practical operation of such a department. In 42.03 per cent of these cases no care or observation other than that of the out-patient department was required. In 1.69 per cent of the cases commitment was recommended to hospitals for mental diseases, in 7.15 per cent, to schools for the feebleminded and in .11 per cent, to penal institutions. General or psychopathic hospital care was recommended in 11.31 per cent. In 2.74 per cent of the cases a report was made to courts; in 1.61 per cent, to schools; in 18.75 per cent, to social agencies; and in 1.13 per cent, to physicians.

The functions of the social service department in a general way may be summarized as follows:—1. The after care and supervision of patients at home; 2. Advice to families of patients in regard to their cases; 3. Advice given other members of the family; 4. Financial relief; 5. Reference to other social agencies or institutions; 6. Information obtained for case histories; 7. Inquiries relative to home conditions when discharge of a patient is under consideration, etc. The routine operation of

the department is well illustrated by the annual report of the Boston State Hospital for 1920. The number under social service supervision during the year was 428. Of these, 278 were new cases. Thirty-two and thirty-seven hundredths per cent were referred by the out-patient physicians; 59.71 per cent by the ward service; 7.19 per cent by other social agencies; and .73 per cent were brought by relatives or friends. The principal reasons for their reference to the social service workers were shown as follows:—For medical history, 50.36 per cent; assistance in securing employment, 9.35 per cent; financial aid, 3.6 per cent; supervision, 7.2 per cent; advice, 19.42 per cent; convalescent care, 2.87 per cent; home care, 2.87 per cent, etc. An analysis of the cases under supervision shows the principal psychoses represented to be as follows:—Arteriosclerosis, 1.8 per cent; general paresis, 4.68 per cent; alcoholic psychoses, 1.8 per cent; manic-depressive psychoses, 4.68 per cent; dementia praecox, 16.55 per cent; paranoid conditions, 4.31 per cent; psychoneuroses, 9.35 per cent; undiagnosed psychoses, 6.84 per cent; and without psychoses, 44.24 per cent. This latter group was made up mostly of psychopathic personalities (28.45 per cent) and mental deficiency (26.29 per cent). The purely social problems presenting themselves in connection with these cases were reported as follows:—Mental disease, 75.54 per cent; physical disease, 2.16 per cent; poverty, 2.88 per cent; criminality, 3.24 per cent; juvenile delinquency, 2.52 per cent; sex offenses, 2.16 per cent; alcoholism, 2.16 per cent; family dissension, 6.12 per cent; ignorance, 2.52 per cent; and bad environment, .36 per cent. In addition to this, 299 discharged soldiers and 543 out-patient cases were reported as being under the supervision of the department, as well as 532 special cases studied in connection with the investigation of syphilis.

The Psychopathic Hospital in Boston started on a

new chapter in its history on December 1, 1920, at which time it was formally separated from the Boston State Hospital and became a separate institution under the direction of Dr. C. Macfie Campbell.

The Phipps Psychiatric Clinic at the Johns Hopkins Hospital in Baltimore was established in 1913. An integral part of a large general hospital and intimately associated with a medical school, it conforms rather closely to the plan of the German psychiatric clinics. A study of its activities shows that during a period of five years (ending January 31, 1918) the admission rate averaged 403.8 per year. Fourteen and three-tenths per cent of the cases were diagnosed as dementia praecox or schizophrenic reaction and 13.7 per cent conform apparently to the classification of manic-depressive psychoses. Ten and five-tenths per cent were diagnosed as neuroses or psychoneuroses; 6.1 per cent as general paresis; fifteen per cent as agitated depressions; 2.3 per cent as alcoholic psychoses; and 6.1 per cent as constitutional inferiority or constitutional psychopathic states. Seven and nine-tenths per cent were cases of anxiety neuroses, agitated depressions or anxiety psychoses; 2.3 per cent were paranoic states or reactions; 3.5 per cent were cases of alcoholism, and 3.7 per cent of drug habits. The dispensary service of the Phipps Clinic has reported an average of 565 cases per year, representing a total of 2,260.5 visits annually.

The work of Drs. Meyer, Hoch and Kirby at the Psychiatric Institute, of Dr. Barrett at the Psychopathic Hospital at the University of Michigan, of Dr. Southard at the Psychopathic Department of the Boston State Hospital, and that of Drs. Meyer and Campbell at the Phipps Psychiatric Clinic in Baltimore has brought the subject of psychopathic hospitals very prominently before the public. Various other establishments of a similar nature have been planned and some are in process

of construction, or already in operation. The State Psychopathic Institute at Chicago and the Psychopathic Hospital of the University of Iowa should be mentioned in this connection. Psychopathic hospitals have been planned for New York City and one is to be built by the State of California. The legislature of Colorado has already made an appropriation of $350,000 for the establishment of an institution of this type in the city of Denver.

The work already done in this field shows quite conclusively that general hospital methods are not inconsistent with the developments of modern psychiatric progress. The large percentage of voluntary cases received and the number of persons consulting the physicians in the out-patient departments shows an unexpected demand on the part of the public for institutions of a new type. As Dr. Adolf Meyer[4] has pointed out, "Our organized system for the care of mental disorder is in many respects forbidding. It throws together all kinds of diseases, and shocks in that way the already sensitive patient who fears the worst for himself or herself. It comes at once with an outspoken declaration of insanity in the very commitment to a hospital, an expression which carries a humiliation to the patient and adds insult to injury. It often means carrying the patient off to a remote asylum which is too widely supposed to have the inscription, 'Leave hope behind all ye that enter here.' Helpfulness rather than coercion must take the place of all this."[1] What the psychiatric clinic may be expected to accomplish in remedying this difficulty was summarized by Dr. Meyer[5] in the following words:—"It is eminently necessary to get

4. Meyer, Adolf: The Aims of a Psychiatric Clinic. Proceedings of the Mental Hygiene Conference at the College of the City of New York, November, 1912.

5. Ibid.

model institutions in which medical students and physicians can learn how to deal with the many problems of the disorders of the organ of behaviour from their inceptions into all their ramifications. The clinic must do the work for at least one limited district, with its outpatient and social service and consultation department, and with its hospital wards. Everything must be done to make help in mental disorders more acceptable and convincingly helpful. More patients must learn to look to it for help and the organization must be so as to give the patient and the physician and the public at large a conception very different from that to-day associated with insanity. It is not so much the issue of more help to the curable, but the issue of more work near where the troubles begin, and work against that which breeds trouble. For this we must learn to put the chief weight on hospitals and organizations for natural districts for intensive work rather than upon the mere economy of large hospitals far away from where the troubles develop."

Southard has raised the question as to the correct designation of institutions of the psychopathic hospital type:—"A word is again necessary as to the meaning of the term 'psychopathic hospital.' For various reasons the term has become so attractive in propaganda that a comparatively large number of institutions of whatever scope have been founded or recommended to receive the term 'psychopathic hospital,' 'institute,' 'department' or 'ward.' Thus there is developing a tendency in state hospitals to denominate the receiving ward 'psychopathic.' There can be no advantage in this designation other than that of calling old ideas by new names. The idea of the receiving ward for committed cases destined to receive the ordinary probate court group of cases is not altered or improved in any manner by the designation 'psychopathic.' The best opinion seems to

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be that a psychopathic hospital or institute shall be an institution in which all types of mental cases, from the probate court group on the one hand up to the most dubious and difficult cases of mental disorder on the other, may be examined; but if an institution is primarily or chiefly concerned with patients of the medicolegal, committable or custodial group, to serve merely as a vestibule through which committed cases pass, such an institution has by no means the broad scope which the very general term 'psychopathic' implies. The institution is not a modified or sublimated form of receiving ward for a great district hospital."

There is, of course, no reason why the reception service of an ordinary state hospital should be spoken of as constituting a psychopathic ward. This accomplishes nothing more, perhaps, than to raise some question as to what the functions of the rest of the institution may be. The designation psychopathic hospital has been rather loosely used and is, as Southard has definitely shown, of American origin. It has been applied somewhat indiscriminately from time to time to practically every form of activity related to the care and treatment of mental diseases outside of the generally recognized state hospital field. These may be summarized as follows:—

1. Detention wards, pavilions, etc. Intended for no purpose other than the custody of the "insane" pending commitment;

2. Psychiatric wards of general hospitals—such as Pavilion F in Albany. There would appear to be no reason for the use of the word psychopathic in such cases, the term psychiatric being much more clearly applicable.

3. Institutes designed primarily for research only or for research and instruction, with or without clinical facilities.

4. Psychopathic hospitals. Independent units or integral parts of a general hospital—with or without facilities for research and instruction. Designed exclusively for mental cases, without regard to legal status, whether committed or voluntary, their detailed examination and careful observation with intensive treatment in the wards for limited periods when indicated, or their supervision and direction in out-patient departments, serving also in some instances as receiving and distributing centers supplying other institutions.

Owing to their limited size, the necessity of treating large numbers in a short space of time, and the fact that institutional care is already amply provided for in the existing state hospitals, the obvious field of the psychopathic hospital is primarily the acute and recoverable psychoses and the milder forms of mental disorder which may or may not require a residence in the wards. Only a thorough examination and a brief period of observation can determine whether or not that is needed. The question at issue is largely that of determining the necessity of a more or less indefinite committed status. These problems arise particularly in dealing with the so-called psychogenic disorders and the psychopathic states—hysteria, neurasthenia, psychasthenia, the psychoneuroses in general and the episodes which characterize the psychopathic personalities. Traumatic psychoses often come into consideration, as well as cases of cerebrospinal syphilis, toxic conditions, drug addictions, the psychoses of infection and exhaustion, and above all, of course, manic-depressive insanity and incipient forms of dementia praecox. Many of these cases require only a brief hospital treatment and are able in a short time to return to home surroundings and resume their former occupations. Often a contact with the chronic and custodial classes is not only without advantage but actually detrimental. The psychopathic hospitals thus exercise

a sort of clearing house function and return to the community many patients who otherwise would be subjected to the stigma, if there is one, of a legal commitment. While questions relating to the public health cannot be analyzed in terms of dollars and cents, the saving to the state which is made by substituting a short period of supervision and treatment, for a protracted residence in an institution of the custodial class amounts to millions. In view of the difficulties encountered in obtaining adequate appropriations for the proper maintenance of the enormous population now housed in our state hospitals, this is a factor which cannot be disregarded.

CHAPTER VII

THE MENTAL HYGIENE MOVEMENT

As the result of an intimate personal knowledge of the subject, acquired during an extended hospital residence as a patient in both public and private institutions, Clifford W. Beers, having recovered his health, resumed his place in the world profoundly impressed with the feeling that the question of mental diseases as a public health problem was one which demanded immediate consideration. In no position financially to institute a campaign for the purpose of interesting the public in the importance of topics which had not been made the subject of general discussion in the past, he was confronted with the necessity of securing the cooperation and support of persons who had the means to launch such an undertaking. With this object in view he wrote his book—"A Mind That Found Itself,"[1] now in its fourth edition and destined, to use the words of the "American Journal of Insanity,"[2] "to become one of the classics of psychological literature." There is some question as to the accuracy with which Mr. Beers analyzed the experiences through which he had passed. Although there is no reason for questioning his mental condition when the book was written, his conclusions were apparently formulated when he had not as yet had sufficient time in which to readjust himself and recover his perspective. Some of his viewpoints certainly reflect a morbid coloring of which he was probably unconscious, although at the time he recognized in himself "symptoms hardly

1. Beers, Clifford W.: A Mind That Found Itself, 1908.
2. Notes and Comments. The American Journal of Insanity, July, 1908.

distinguishable from those which had obtained eight months earlier when it had been deemed expedient temporarily to restrict my freedom." His work was referred to as an "autopathography" by Farrar,[3] who made a detailed study of the various psychological trends manifested. These are more or less immaterial. The interesting feature of his book is the elaborate description of a common but exceedingly important psychosis written by a well educated observer with a collegiate training. Its greatest value, however, lies in the fact that he brings home to us so graphically the overwhelming importance of the personal element so often overlooked by those who are accustomed to dealing with mental cases in large numbers. "It carries the reader away from the technical dissertations, and brings him face to face with the feelings and reactions of a distorted mind, showing him the patient as a human being with a sentient soul and not as a case."[4]

That the plan which Mr. Beers had formulated for an organized mental hygiene movement had a practical application was recognized at once by Dr. Adolf Meyer,[5] who expressed the following views on the subject as early as 1907:—"It will be a difficult task to find the not very common level-headed and well-informed persons in various parts of the country capable of organizing the public conscience of the people. Neglected by physicians and dreaded by the fiscal authorities, the facts are not available today, except in fragments, mixed up with innumerable extraneous considerations; the hospitals are closed corporations, the press injudicious in inquiry and reform, and those capable of judgment unable to get the facts. The crying needs persist in the

3. Farrar, Clarence B.: The Autopathography of C. W. Beers. American Journal of Insanity, July, 1908.
4. Notes and Comments. The American Journal of Insanity, July, 1908.
5. Beers, Clifford W.: A Mind That Found Itself. Revised. Fourth edition, 1917.

meantime. Instead of a land fund (the 12,225,000 acres bill and ideal of Dorothea Dix) we must have a permanent survey of the facts and efficient handling of what is not prevented. The experience with what remains as inevitable experiments of nature, as well as with people who should know better, must be put into practical form for communication and teaching, and brought home where it will tell; in opportunities of work and education for physicians, and cooperation between our educational forces and those who labor for physical hygiene and prophylaxis. Most of us are already under too definite obligations to meet the call for devoted work for the maintenance of an organization as well as can Mr. Beers. In my judgment, he deserves the assistance which will make it possible for others to join in the work which will be one of the greatest achievements of this country and of this century,—less sensational than the breaking of chains but more far-reaching and also more exacting in labor. A Society for Mental Hygiene with a capable and devoted and judicious agent of organization will put an end to the work of makeshift and short-sighted opportunism, and initiate work of prevention and of helping the existing hospitals to attain what they should attain, and further of adding those links which are needed to put an end to conditions almost unfit for publication. What officialism will never do alone must be helped along by an organized body of persons who have set their hearts on serious devotion to the cause. If Mr. Beers gets the means to pursue his aim he will secure the body which will guarantee proper judgment in a cause which has been a mere foster-child in the field of charitable donations merely because it seemed too difficult. Here is a man who is not afraid of the task. May he get the help to enable him to surround himself with the best wisdom of our nation!''

Encouraged by this and many other such expressions

of opinion, Mr. Beers proceeded to the organization of the first state mental hygiene society, that of Connecticut, which began its activities in 1908. The National Committee for Mental Hygiene was formally organized on February 19, 1909. The first few years were devoted to raising funds and making comprehensive preparations for further activities which did not start until 1912. In the meanwhile the cooperation of many prominent philanthropists, educators, physicians, etc., was assured. The importance of this movement is illustrated by the prominence of the persons who were willing to associate themselves with an undertaking of this nature. The membership of the committee has included, in addition to many others, Professor William James, Dr. Lewellys F. Barker, Dr. Rupert Blue, Dr. George Blumer, Dr. G. Alder Blumer, Professor Russell H. Chittenden, Ex-President Charles W. Eliot, President W. H. P. Faunce, President John H. Finley, Professor Irving Fisher, Dr. Charles H. Frazier, Cardinal Gibbons, President Arthur T. Hadley, Chancellor David Starr Jordan, President Cyrus Northrop, Dr. Stewart Paton, Dr. Frederick Peterson, Professor Gifford Pinchot, President Jacob G. Sherman, Rev. Anson Phelps Stokes, Mrs. William K. Vanderbilt, Professor Henry VanDyke, Dr. William H. Welch and Ex-President Benjamin Ide Wheeler. Important financial contributions were made by Professor William James, Mr. Jacob A. Riis, Mr. Henry Phipps, Mrs. Elizabeth M. Anderson, Mrs. William K. Vanderbilt, Mrs. E. H. Harriman, Mrs. Willard Straight, the Rockefeller Foundation, etc. With the appointment of Dr. Thomas W. Salmon as Medical Director in 1912 the committee commenced active operations with its future success assured in every way.

The objects and purposes of the National Committee have been very adequately summarized in the following language used in one of its publications:—"The Na-

tional Committee for Mental Hygiene and its affiliated state societies and committees are organized to work for the conservation of mental health; to help prevent nervous and mental disorders and mental defect; to help raise the standards of care and treatment for those suffering from any of these disorders or mental defect; to secure and disseminate reliable information on these subjects and also on mental factors involved in problems related to industry, education, delinquency, dependency, and the like; to aid ex-service men disabled in the war; to cooperate with the federal, state, and local agencies and with officials and with public and private agencies whose work is in any way related to that of a society or committee for mental hygiene. Though methods vary, these organizations seek to accomplish their purposes by means of education, encouraging psychiatric social service, conducting surveys, promoting legislation, and through cooperation with the many agencies whose work touches at one point or another the field of mental hygiene. When one considers the large groups of people who may be benefited by organized work in mental hygiene, the importance of the movement at once becomes apparent. Such work is not only for the mentally disordered and those suffering from mental defect, but for all those who, through mental causes, are unable so to adjust themselves to their environment as to live happy and efficient lives." The first few years of the committee's existence have demonstrated conclusively that it is the most powerful factor in promoting the welfare and interests of the insane in this country since the time of Dorothea Dix. The elaborate surveys which it has made of conditions existing in various states have resulted in beneficial legislation which had been needed for years. Surveys have been completed in California, Tennessee, Louisiana, Pennsylvania, Texas, Connecticut, Georgia, Wisconsin and South Carolina, and others

are under way. It has brought about an interest in mental diseases and mental defects such as has never been manifested before in this country. Its activities during the early part of the war were responsible largely, if not entirely, for the attention given by the Army and Navy to matters relating to psychiatry. The National Committee has taken a very active part in encouraging the establishment of psychiatric clinics in connection with the state hospitals. It has been largely responsible for the psychological and psychiatric examination of defectives in penal institutions and reformatories now generally recognized as being of vital importance. Its activities have emphasized the importance of a preliminary mental examination of obviously defective individuals brought before the courts. One of its accomplishments has been the publication of a very successful quarterly magazine, "Mental Hygiene," which was undertaken in 1917 and has long since passed the experimental stage. A summary of its activities would not be complete without a reference to the valuable work which the committee has done in standardizing the reports made of institutions and compiling accurate statistics relating to mental diseases and defects which will be of inestimable value to all who are interested in the progress of psychiatry in this country.

State mental hygiene societies now exist in Alabama, California, Connecticut, the District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Maine, Mississippi, Missouri, North Carolina, Oregon, Pennsylvania, Rhode Island, Tennessee and Virginia. The committee on mental hygiene in New York is a department of the State Charities Aid Association, which has been actively interested in matters relating to the care and treatment of the insane for many years. The chief purposes of the state organ-

izations have been officially described as follows:—[6] "To work for the conservation of mental health; for the prevention of mental diseases and mental deficiency and for improvement in the care and treatment of those suffering from nervous or mental diseases or mental deficiency." The interest of the public is stimulated by pamphlets, reports and publications of various kinds, mental hygiene exhibits of an educational nature, public lectures, mental hygiene conferences, etc. The local societies have as a definite object, moreover, the encouragement of[7] "(a) Out-patient departments for mental cases in connection with hospitals for mental diseases and general hospitals, and independent of either of these agencies, such, for instance, as dispensaries and mental hygiene clinics, (b) Systematic psychiatric as well as psychological examination of school children, (c) Provision for incipient and emergency cases in psychopathic wards of general hospitals, (d) Psychopathic hospitals in which cases of mental disorder may be treated in their earliest and most curable stages and where practical work in prevention and social service may be done, (e) Increased institutional provision for the feeble-minded and epileptic." One of their most important objects is the enactment of laws in the various states which will take care of the insane pending commitment out of the hands of the poor authorities and delegate it to health officers or physicians. As Dr. William L. Russell[8] has pointed out, the mere provision of institutional care for the mental diseases of a community is not the only thing to be considered, "Unless the vital issues

6. Beers, Clifford W.: A Mind That Found Itself. Revised. Fourth edition, 1917.
7. Ibid.
8. Russell, William L.: Community Responsibilities in the Treatment of Mental Disorders. Mental Hygiene, July, 1918.

occasioned by mental disorders in the homes, the schools, the industries, and in social relations are intelligently grasped and dealt with by means of the state system, state institutions are liable to be looked upon as a resource which is only to be appealed to when complete separation of the patient from his usual environment has become imperative. They will still be regarded as asylums. In such case, their development is likely to be in the direction of great custodial centers, and economic and so-called business consideration in their management are likely to prevail over those dictated by science and humanity. This has happened in more than one state in which state care has been adopted under conditions of great promise. A system of state care must, to be effective, not only be adopted, but it must be planned and developed with reference to the known needs of the sufferers from mental disorder."

The Canadian National Committee for Mental Hygiene, the second national organization of this type, was established at Ottawa on April 26, 1918, largely as a result of the activities of Dr. Clarence M. Hincks of Toronto University. Arrangements were at once effected for an active participation in war work, a comprehensive study of immigration, elaborate statistical institutional studies, the establishment of a library, special investigation of delinquency and a series of lectures to be given in various parts of the Dominion. This organization has been an exceedingly active one from the beginning. The first number of the "Canadian Journal of Mental Hygiene" appeared early in 1919. A survey was made of Manitoba and its needs during the first year. The University of Toronto announced an extension course beginning April, 1919, for the special training of social workers desiring to enter the mental hygiene field. Instruction was given in psychiatry, social and economic problems, neurology, mental tests, case work, social insti-

tutions, occupational therapy, child welfare, home economics and recreation. In 1919 a mental hygiene survey was made of British Columbia. Alberta, New Brunswick and Nova Scotia have already requested similar surveys with the intention of improving the methods of caring for mental diseases and defects in those provinces. Psychiatric clinics have been established in connection with the Toronto University and the Royal Victoria Hospital in Quebec. New institutions have been planned in British Columbia and a psychopathic hospital is to be built in Toronto. In 1920 a mental hygiene committee was instituted in France [9] by the Minister of Hygiene, Assistance and Social Providence. The committee is made up of about forty members, psychiatrists, pathologists, physiologists, managers and magistrates. Dr. Dron, Senator and Mayor of Tourcoing, was elected chairman. The committee is to make a study of all questions relating to mental hygiene and psychiatry. It will consider particularly methods of coordinating the activities of various organizations already at work, the creation of new interests and spreading broadcast information on mental hygiene topics. A representative of this society has already made a visit to this country to study methods employed here. The mental hygiene movement has even reached South Africa. "Mental Hygiene" [10] has called attention to the fact that the Cape Province Society for Mental Hygiene has actively interested itself in the provisions discussed by the government for the care, education and training of the feebleminded. Two institutions are to be opened for this purpose. The Cape Province Society has already instituted a campaign for the purpose of organizing other local societies as well as a national council.

When Mr. Beers wrote his well-known book he evi-

9. Notes and Comments. Mental Hygiene, July, 1920.
10. Ibid., October, 1920.

dently had in mind more particularly the amelioration of material conditions existing in institutions. He was looking forward to provision for the more humane and scientific care of mental diseases. This is unquestionably a consideration of vital importance and these objects have not been neglected in the practical operation of the mental hygiene organizations. Mental hygiene in its broadest sense, however, has come to mean much more than that. The foundation of the present-day conception of mental hygiene may be said to have been laid by Adolf Meyer in 1906, when he described the fundamental principles which he believed to be concerned in the development of dementia praecox. He saw in this disease a disorder of the personality due to a deterioration of mental habits, in other words, to faulty mental hygiene. While his views as to the etiology of dementia praecox have not been generally accepted, they suggested an entirely new avenue of approach to the problem of mental diseases in general. Hoch's "shut in" personality and Bleuler's "autismus" were more or less comparable hypotheses which do warrant to a certain extent the tenability of such theories as were advanced by Meyer. The same may be said of some of the mental mechanisms advocated by Freud and others of the more purely psychological school of psychiatrists. This viewpoint is reflected somewhat by White[11] in his conception of childhood as the golden period for mental hygiene. "The outstanding fact that present-day psychiatry emphasizes is that mental illness is a type of reaction of the individual to his problems of adjustment which is conditioned by two factors—the nature of those problems and the character equipment with which they are met. . . . Mental illnesses, defects of adjustment at the psychological level, are therefore dependent upon

11. White, William A.: Childhood: the Golden Period for Mental Hygiene. Mental Hygiene, April, 1920.

defects in the personality make-up, and as this personality make-up is what it is as a result of its development from infancy onward, it follows that the foundation of those defects which later issue in mental illness are to be found in the past history of that development." He protests very properly against accepting the theory that the characteristics of the personality are entirely the products of germ-plasm determiners moulded in strict accordance with the laws of heredity and therefore immutable.

Copp [12] has called attention to the fact that the dominant figure in mental hygiene activities must eventually be the family physician, who has an opportunity to see the beginnings of mental disorders when they first manifest themselves. He must, therefore, be qualified to intelligently understand such conditions and be prepared to suggest a remedy. His is inevitably the first point of contact. Mental hygienists have found a fertile and almost untouched field in our public school system. As Professor Burnham [13] suggests, "It is a grave reflection upon the schools that so many of their graduates have to be reeducated in the sanitarium or the hospital." The hygiene movement in the school population, as suggested by Professor Gesell,[14] means something more than psychological examinations and mental tests, important as they are. It means a study of the individual. He would have a new type of school nurse or social worker, one interested particularly in "the child with the night terrors, the nail biter, the over-tearful child, the over-silent child, the stammering child, the extremely indifferent child, the pervert, the infantile child, the

12. Copp, Owen: The Duty of the State and the Physician to the Mental Patient. The Pennsylvania Medical Journal, December, 1919.
13. Burnham, William H.: The Scope and Aim of Mental Hygiene. Boston Medical and Surgical Journal, December 19, 1918.
14. Gesell, Arnold: Mental Hygiene and the Public School. Mental Hygiene, January, 1919.

unstable choreic, and a whole host of suffering, frustrated and unhealthily constituted growing minds, that we are barely aware of in a quantitative sense, because we do not have the agencies to bring them to our attention as problems of public hygiene and prophylaxis." They require highly specialized supervision and training if they are not to become future residents of our hospitals for mental diseases or possibly of institutions of a reformatory type. If such reforms as these are to be brought about in our public school system it is hardly necessary to suggest that the teacher herself must have very clear conceptions as to the significance and importance of mental training in youth.

If these matters are important in the public schools they must be even more serious factors in higher education. Campbell[15] has raised the question as to how far the universities "fulfill their responsibilities with regard to the mental hygiene of the community? It is doubtful whether they have attained a clear recognition of the fact that a man's mind may be richly supplied with a great variety of special information, that he may have attained a high intellectual level, and yet the man's life may be rendered inefficient because it rests upon insecure foundations. An education may enable a man to solve abstruse intellectual problems, and yet leave him so hopelessly unable to cope with a bereavement, an unsuccessful love affair, difficult marriage relations, or even simple instructive impulses that he may lose control of the direction of his life and for a period be dominated by factors which have been almost entirely repressed in his conscious life; the disorder may be so marked as to be included under the wide term "insanity." To rear a superb intellectual structure on such a foundation is surely not an ideal education; it is like building a house

15. Campbell, C. Macfie: The Responsibilities of the Universities in Promoting Mental Hygiene. Mental Hygiene, April, 1919.

on the sand, or, to speak more hygienically, it is like building a superb mansion without paying any attention to the plumbing." Deplorable as it may seem that such important elements in the education of the individual have been overlooked, it is not nearly so surprising as the fact that no instruction of any consequence is given in psychiatry in the great majority of our medical schools. This is a matter which is well worthy of attention and is fortunately beginning to receive some consideration. A rather systematic campaign has been instituted by the mental hygiene organizations to bring about some instruction in these topics in our schools and universities,—a campaign which promises to be productive of results sooner or later.

An interesting phase of the mental hygiene movement is the relation which it has been shown to hold to the field of industry. It must be admitted that this is an intensely practical question. We even have a Journal of Industrial Hygiene, which has been published successfully now for some time. The mere taking of intelligence tests for industrial purposes is only an incident. The important thing, as shown by Cobb,[16] is the prevention of mental disorder by bringing about a proper relation of the worker to his environment and the elimination of causes of discontent. Beyond this there is, of course, the early treatment of individuals before the opportunity of bringing about a proper adjustment has been lost for all time. Cobb [17] suggests that, above all, the physician must "forget orthodox psychiatry (as the economist seems to be forgetting cut-and-dried political economy) and interest himself in a dynamic, individual psychology which recognizes the essentials of

16. Cobb, Stanley: Applications of Psychiatry to Industrial Hygiene. The Journal of Industrial Hygiene, November, 1919.

17. Ibid.

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human nature and at last begins to analyze for us the elements of which human nature really consists, looking on each case as a human experiment in reaction to environment."

There would appear to be no limit to the possibilities of the mental hygiene movement. Perhaps no more comprehensive summary of its objects and purposes can be given at this time than that contained in a definition recently formulated by Southard:[18] "To stem the tide of syphilis, to wage war on alcohol, to counsel against marriage of defectives, to generalize the insane hospitals, to specialize the general hospitals, to weed defects out of general school classes, to open out the shut-in personality, to ventilate sex questions, to perturb and at the same time reassure the interested public—these are infinitives that belong perhaps in a rational movement for mental hygiene. They are things the past has taught us more or less clearly to do and in that sense the movement for mental hygiene is surely not much more than the elaboration of the obvious."

It may be suggested that these are functions which properly belong to the medical profession exclusively. A little reflection will, however, be sufficient to show that this is not the case. Efforts have been made for years to prevent the spread of venereal disease. Attempts were made to accomplish this by legislative enactment. That these methods of control have been ineffectual is now well known to everyone. Continental governments have for a long while been trying to regulate prostitution by police supervision and frequent medical inspections. The percentage of venereal disease has, however, not been appreciably reduced by this plan and it has been repeatedly condemned by vice commissions as a result of official investigations. It may be stated now, I

18. Southard, Elmer E.: Notes and Comments. Mental Hygiene. January, 1921.

think, without fear of contradiction that this is a matter which must be regulated by educating the public and which can be handled in no other way. It is a well known fact that no law can be enforced unless it meets with public approval. The will of the majority rules. When the effects of venereal disease are generally recognized there will no longer be a necessity for much legislation on the subject. This is a question of far-reaching importance. When it is recalled that twelve per cent of the cases admitted to our hospitals for mental diseases are suffering from general paresis or cerebral syphilis, the necessity of a more general understanding of these conditions is readily apparent. The percentage is much higher in the densely populated metropolitan districts.

Legislative restrictions in the past were never very successful in limiting the use of alcoholic beverages. It is true that the Eighteenth Amendment to the Constitution of the United States and the Volstead Act have had a very material effect on the number of cases of alcoholism admitted to our institutions. The influences which resulted in alcoholism, however, will find an outlet in some other direction unless they are modified in some way. This again is largely a matter of education. There never was a time in the history of the country when a knowledge of the effect of drugs of various kinds on the nervous system was as important as it is today.

The history of the movement to prevent the marriage of mental defectives is more or less familiar to all. The sentiment of the community is apparently not such at this time as to encourage the regulation of the marriage of the mentally or physically unfit by legislative restrictions. Attempts to do so have been almost a flat failure. Various states have passed laws providing for the sterilization of defective delinquents. These laws, generally speaking, have accomplished nothing because

public sentiment was not behind them. All of these matters have been brought to the attention of the public by prominent speakers on numerous occasions. Frequent articles have been printed in medical journals, well-known periodicals, and even in the daily papers. Attention has been called to the mental clinics established here and there and repeated reference has been made to the fact that physicians at our state hospitals may be consulted at any time on questions pertaining to mental diseases or mental defects.

Something has been accomplished along these lines. It is unfortunate that, as a rule, people look with more or less suspicion upon institutions which are even now generally referred to as asylums. There are many who still believe that every hospital for mental diseases has its padded cells and underground dungeons. There is a rather widespread idea that the most common causes of insanity are cigarette smoking, religion and self abuse. Even in our most progressive communities it has been difficult, if not impossible, to entirely prevent the temporary detention, at least, of mental cases in jails and police stations. Very few general hospitals have psychopathic wards or any realization as to the necessity of establishing them. It is not to be denied that in many states the care of the mentally ill in our public institutions is far from being what it should be in this enlightened day. These are conditions that cannot be remedied by the medical profession without the active assistance of leaders of public sentiment. The fact that the importance of these questions is recognized by prominent educators, business men, lawyers, and other persons active in the affairs of the community, and well known to the public, will accomplish more than articles in the medical journals by physicians. This constitutes the great field of the mental hygiene organizations. They will mould public sentiment as nothing else ever has, in mat-

ters which relate to the mental health of the country. They will influence legislation where it is needed in a way that no medical society can hope to do. Above all, they can in time bring the public face to face with the fact that mental diseases should be discussed, generally understood and prevented, instead of being merely concealed and misrepresented. Possibly it would not be looking too far into the future to express the hope that an organization composed largely of laymen may be able eventually to accomplish something that the medical profession has never been able to do,—induce those who frame our laws to provide medical treatment for defective delinquents instead of merely locking them up for the protection of society. It would seem, moreover, that the time has come when the public should insist that the mental condition of persons accused of crime be made a medical rather than a legal question exclusively.

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CHAPTER VIII

THE ETIOLOGY OF MENTAL DISEASES

In reviewing the history of medicine there is nothing more discouraging than the references found in literature to the views entertained from time to time relative to the cause of mental diseases. To a certain extent this may be looked upon as an index of the progress of civilization. It must be admitted that it is at the same time, nevertheless, a reflection upon the medical profession which has never shown the interest in psychiatry that the importance of the subject warrants. It has been suggested that mental diseases did not play a prominent part in ancient history, owing to the fact that the law of the survival of the fittest automatically eliminated the insane and defective. As Tuke[1] says, "They perished in the course of nature, or were stamped out of existence; many of the perverse and morally insane were stoned to death; war destroyed a large number of feeble persons; while the Romans deliberately, and in the interests of the race, threw down from the Tarpeian Rock the children who were unfit to live." The papyri of the fifteenth century before Christ show clearly that the doctrine of demoniacal possession was generally entertained at that time.

One of the earliest attempts to explain the origin of mental diseases perhaps was that of Plato. "There are two kinds of madness, one arising from human diseases, the other from an inspired deviation from established custom." Hippocrates[1] had some very clearly defined views on this subject: "As long as the brain is at rest

1. Tuke, D. Hack: A Dictionary of Psychological Medicine. 1892.

a man enjoys his reason; but the depravement of the brain arises from phlegm and bile, either of which you may recognise in this manner: Those who are mad from phlegm are quiet, and do not cry out or make a noise, but those from bile are vociferous, malignant, and will not be quiet, but are always doing something improper. If the madness be constant, these are the causes thereof; but if terrors and fears assail, they are connected with derangement of the brain, and derangement is owing to its being heated. And it is heated by bile when it is determined to the brain along the blood-vessels running from the trunk, and fear is present until it return again to the veins and trunk, when it ceases. He is grieved and troubled when the brain is unreasonably cooled and contracted beyond its wont. It suffers this from phlegm, and from the same affection the patient becomes oblivious." An interesting theory which he evolved was that the appearance of varicose veins or hemorrhoids tended to relieve the patient's mental suffering. Celsus subscribed to the black bile doctrine. Galen's teaching was that fatuity was due to moisture, while dryness produced sagacity. In cases where the whole body contained melancholy blood he recommended venesection. Thick and black wine was to be avoided, "as from it the melancholy humour is made."[2] This he described as a condition of the blood "thickened, and more like black bile, which exhaling to the brain, causes melancholy symptoms to affect the mind." The Roman custom of appealing to the household gods, sons of the Goddess of Madness, was quite significant. Horace, in speaking of Orestes, says: "Was he not driven into frenzy by those wicked Furies, before he pierced his mother's throat with the reeking point of his sword? Nay, from the time that Orestes passed for being unsound of mind he did nothing in any way to be condemned; he never

2. Tuke, D. Hack: A Dictionary of Psychological Medicine. 1892.

dared wound with his sword either his friend Pylades or his sister Electra; he merely abused both, calling one a Fury, the other some other name suggested by his active or bright bile." In the story of Argive, Horace says that "his relations cured him with much labour and care, by expelling the disease and the bile by doses of pure hellebore."

Little progress was made, if any, by the time of the Christian era. In fact, as Clouston [3] says, "The mental pathology of the New Testament and of the early ages of Christianity was founded on the idea that the disease was a possession of the devil, and the feeling towards this afflicted class of human beings was naturally that of repulsion and hatred, their treatment following on those lines. Neglect, the whip, chains, confinement in stone cells, starvation, unsuitable medical treatment, speedy death were the natural results."

Passing to the seventeenth century we find that Sennert, a professor in Wittenberg, believed that maniacs evacuated stones, iron, living animals, etc., things not produced in the natural body and therefore caused by demons. He also believed firmly in witchcraft. Thomas Willis (1682) is said by some to have been one of the first to suggest a relation between insanity and pathological changes in the brain. Prochaska in 1784 went so far as to say, "We think, with Haller, that no light can be thrown upon it in any other way than by a careful dissection of the brains of fatuous persons, apoplectics, and such as have other disorders of the understanding." It would appear to have been the belief of Pinel that the primary seat of disease in mental conditions was in the stomach and intestinal tract. Spreading from these centers it caused a derangement of the mind when the brain became involved. The influence of the moon, as well as the stars, was spoken of by Hippocrates and ad-

3. Clouston, T. S.: Unsoundness of Mind. 1911.

mitted by Galen. To these ideas we owe the word lunacy which appeared in the laws of England in 1320 and may be found there today.

The influence of the moon on the mind was taken quite seriously. Rush seems to have been somewhat in doubt on this subject and suggested the probability of there being a kind of sixth sense involved—a perception of the state of the air, and of light and darkness, as Pritchard expressed it, to which we are insensible in health. It was thought that the full moon, by rarefying the air, increased the amount of light, thus affecting the mind. Dr. Rush noted that during an eclipse of the sun in 1806 "there was a sudden and total silence in all the cells of the hospital." He expressed the opinion in his "Medical Inquiries and Observations" in 1812 that there are few cases in which the insane feel the influence of the moon and that the excitement resulting in such cases is to be attributed to the resulting increase of light. It is interesting to note that von Feuchtersleben, an eminent German writer, in 1845 was unwilling to go on record as stating positively that the moon was not a factor in the causation of insanity. Esquirol, in his "Maladies Mentales," in 1838, branded this belief as a superstition, but admitted that there were certain facts which could not be overlooked. "It is true that the insane are more agitated at the full moon as they are also at the dawn of day; but is it not the bright light of the moon that excites them, as that of the day every morning? Nevertheless, an opinion which has existed for ages—which has spread over all lands, and which is consecrated by popular language—demands the most careful attention of observers." Dr. Allen of the York Lunatic Asylum was very firmly of the opinion that the moon had a decided influence on the time of death in mental diseases. This question was given very serious consideration by various writers as late as 1856.

In the meanwhile efforts were being made to ascertain the cause of mental disease by means of pathological researches. Morgagni,[4] one of the earlier investigators, came to the conclusion that the more common lesions were in the pineal gland, although he found some induration of the brain and various other well-defined changes. Arnold (1782) thought that insanity was due to an increased density of the cerebral substance, particularly, according to Tuke, "of those parts of the brain by means of which the soul is connected with the body." Pinel finally concluded that pathology had practically nothing to do with the problem and Esquirol in 1838 wrote very discouragingly on the subject. Early contributions of considerable importance were made, however, by Foville, Bayle, Greding, Calmeil, Guislain, Parchappe and others. These were confined almost entirely to a study of gross or macroscopic lesions of the brain. Griesinger in 1845 reviewed the pathological changes in the nervous system quite thoroughly as far as they were known at that time. It must be admitted that the greater part of our knowledge of the pathology of mental diseases was acquired at a much later date.

A very definite indication of the progress, or lack of progress, made in determining the etiology of the psychoses is the list of causes agreed upon at the International Congress of Alienists[5] in 1867:—1. Physical causes: Artificial deformities of cranium; convulsions of infancy and dentition; cerebral congestion (primary, not that which arises in the course of certain forms of insanity); organic affections of the brain; senility; pellagra; anemia; constitutional syphilis; intermittent fever; typhoid fever; acute rheumatism; gout and chronic rheumatism; organic affections of the heart; pulmonary

4. Morgagni, G. B.: De Sedibus et Causis Morborum per Anatomem Indegatis. 1761.
5. Journal of Mental Science. January, 1870.

phthisis; intestinal worms; other acute diseases; other chronic diseases; suppression of the hemorrhoidal flux; menstrual disorders; metastasis; alcoholic drinks; abuse of tobacco; other vegetable poisons; mineral poisons (lead, mercury, coffee, etc.); insolation; intense heat; intense cold; blows and falls upon the head; other traumatic causes. 2. Moral causes: Appertain to religion; education; love (love thwarted, jealousy); family affections; fluctuations of fortune; domestic troubles; pride; disappointed ambition; fright; irritation; anger; wounded modesty; political events; nostalgia; ennui; misanthropy; sudden joy; simple imprisonment; solitary confinement.

In 1897 the New York State Commission in Lunacy in its eighth annual report published an analysis of the assigned causes of insanity given in 39,369 cases admitted from 1888 to 1896. Of these 11,999 were reported as unascertained. In the remaining 27,370 cases the important "assigned causes" in the order of their frequency were as follows: Moral causes (including domestic trouble, loss of friends, business anxieties, pecuniary difficulties, grief, fright, disappointed affections, disappointed ambition, political excitement, religious excitement, etc.) 6,608, intemperance in drink 4,763, hereditary predisposition 2,095, old age 1,723, general ill health 1,681, epilepsy 1,605, ill health following overwork 1,092, masturbation 1,063, puerperal (including childbirth and abortion) 773, traumatic 608, climacteric 502, la grippe 442, sunstroke 402, physical diseases 375, syphilis 368, cerebral diseases 312, intemperance in drink and narcotics 277, congenital defects 223, shock from injury 167, fever 147, uterine and ovarian disease 132, pregnancy 109, privation and overwork 110, etc. These are given in detail not that they throw any light on the question of etiology but that they are quite significant as to the ideas prevalent on this subject only a few years ago. In justice

to the Commission in Lunacy attention should be called to the fact that this tabulation does not purport to give actual causes but those officially "assigned" by the examining authorities or others interested. Clouston [6] in 1911, in making a statistical study of 11,346 cases admitted to the Royal Edinburgh Mental Hospital in the course of thirty-five years, enumerated a long list of causes shown in the hospital reports. It is interesting to note that they include nursing, disordered menstruation, self abuse, sexual excess, surgical operations, bronchitis, prostatic disease, lupus, commencing menstruation, transference of morbid action from other organs to the brain, excessive tobacco smoking, chloroform inhalation, excessive number of children, religious excitement, marriage, changes of residence, sedentary habits, political excitement, bad temper, the Queen's Jubilee, etc. As he says, "No other disease has anything like this list of 107 causes. A black and terrible roll it is. Poor humanity has much to contend with to keep sound in mind." Analyzing these statistical findings, Clouston concludes that "bad heredity, congenital defects, and previous attacks are the great predisposing causes, and that alcohol, the crises of life, epilepsy, the various forms of brain poisons and the gross brain and nervous diseases constitute the mass of exciting causes. Together they account for over seventy per cent of the defects and diseases of the mind that come under my observation."

A reference to the statistical reports of the past as published by the hospitals of this and other countries will show nothing radically different until within the last few years. It will readily be observed that fundamentals were almost entirely lost sight of and nonessentials overemphasized. Masturbation, for instance, is often a symptom of dementia praecox and other forms of mental disease, but is not now looked upon as an important eti-

6. Clouston, T. S.: Unsoundness of Mind. 1911.

ological factor. The immediate cause, so-called, is usually a mere incident, often not without some significance, but bearing little if any definite relation to the fundamental underlying condition responsible for a mental breakdown. The studies of Meyer, Hoch, Kraepelin, Freud, Jung, Bleuler and many others have shown that in manic-depressive insanity, dementia praecox and various other psychoses we are dealing with very definite constitutional conditions, morbid temperaments, personality defects, etc., which are responsible for the maladjustments leading to the development of psychoses. Financial reverses, domestic difficulties, the death of near relatives, the ordinary hardships and disappointments of life, even ill health, do not as a rule mean the development of a psychosis in the normal, properly balanced individual. In the constitutionally predisposed, the love affair, the loss of a position, the upsetting factor, whatever it may be, is merely the "straw that breaks the camel's back" and is nothing more than an accident of fate, a pure coincidence. Any other comparatively trifling occurrence out of the ordinary, any difficult situation which the makeup of the individual could not adequately meet and react to, would have accomplished the same result. There are, however, of course, certain psychic traumas to which these inadequate personalities are particularly susceptible.

Experience has shown that without any doubt there are conditions for which defective heredity is largely responsible. It is often difficult to determine the actual rôle which this plays in a given case. Efforts have been made to reduce the study of these factors to a definite scientific basis. In 1865 Gregor Mendel,[7] Abbot of Brünn, published an account of a series of experiments made by him with the common pea (pisum sativum) which was destined to revolutionize our views on the

7. Mendel, Gregor J.: Versuche über Pflanzen Hybriden. 1865.

subject of heredity. On crossing a tall with a dwarf plant, tall hybrids resulted with no intermediate forms. This inheritance is said to be due to the presence of a definite "determiner" in the germ plasm. All of his hybrids being of the tall variety, he designated that character as the "dominant," the dwarf being spoken of as the "recessive." On the fertilization of these hybrids he obtained another generation, which averages three tall plants to one dwarf. Further investigation showed that the dwarfs always bred true, as did about one out of three of the tall varieties, the remaining two behaving as did the original hybrids and giving three talls to one dwarf. He therefore observed that he was dealing with three varieties of inheritance, the dwarfs which bred true, the talls which bred true and the talls with a fixed proportion of talls and dwarfs. The phenomenon as noted by Mendel is not, however, universal in its application. Curiously enough no attention was given to Mendel's experiments until eighteen years after his death, when his work was rediscovered by de Vries, Correns and Tschermak in 1900.

Davenport[8] has shown that there are six possible matings of germ cells as illustrated by the pigment of the eye:—1. Both parents, pigmented iris (brown eyes) and duplex—all offspring with pigmented iris and duplex; 2. Both parents brown-eyed, one duplex, one simplex—all children brown-eyed, but half simplex; 3. One parent brown-eyed and duplex, the other blue-eyed—all children brown-eyed and simplex; 4. Both parents brown-eyed and simplex—one-fourth of the children brown-eyed and duplex, one-half brown-eyed and simplex, and one-fourth blue-eyed; 5. One parent brown-eyed and simplex, and the other blue-eyed—one-half the children brown-eyed and simplex, the other half blue-eyed; 6. Both parents blue-eyed—all children blue-eyed. It should be explained

8. Davenport, Charles B.: Heredity in Relation to Eugenics. 1911.

that a duplex origin means the inheritance of a character from both parents and simplex from only one. The principles of the Mendelian laws of heredity have been applied to a study of the color of the eyes and skin, the color and form of the hair, the stature, body weight and many other family traits such as musical knowledge, ability along artistic and literary lines, mechanical skill, etc. They have also been applied to the study of various diseases, such as Huntington's chorea, hereditary ataxia, deaf-mutism, feeblemindedness, epilepsy and insanity, etc.

Rosanoff [9] and Orr have suggested the following hypothesis relative to the transmission of the neuropathic constitution as based on the Mendelian theory:—1. Both parents being neuropathic, all children will be neuropathic; 2. One parent being normal but with the neuropathic taint from one grandparent, and the other parent being neuropathic, half the children will be normal but capable of transmitting the neuropathic constitution to their progeny, and half will themselves be neuropathic; 3. One parent being normal and of pure normal ancestry, and the other parent being neuropathic, all the children will be normal but capable of transmitting the neuropathic makeup to their progeny; 4. Both parents being normal, but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable of transmitting the neuropathic makeup to their progeny, one-half will be normal but capable of transmitting the neuropathic makeup, and the remaining one-fourth will be neuropathic; 5. Both parents being normal, one of pure normal ancestry and the other with the neuropathic taint from one grandparent, all the children will be normal; half of them will be capable and

9. Rosanoff, A. J., and Orr, Florence: A Study of Heredity in the Light of the Mendelian Theory. American Journal of Insanity, October, 1911.

half not capable of transmitting the neuropathic makeup to their progeny; 6. Both parents being normal and of pure normal ancestry, all the children will be normal and not capable of transmitting the neuropathic makeup to their progeny.

Just how much importance is to be attached to these theories is a difficult matter to determine. A study of a considerable number of families by Rosanoff [10] would appear to be very suggestive, although his conclusions must be looked upon as fairly conservative:—"On the whole, taking into consideration the limited amount of material as well as the various sources of possible error, the correspondence between the actual findings and theoretical expectation, as shown in the table, must be regarded as strikingly close." On the other hand, as White [11] says, "In dealing with the subject of heredity, however, it must not be forgotten that our ideas are of necessity largely founded upon hypotheses, as biological science has not yet unfolded a sufficient number of facts to make it possible to tell just how much, in any individual case, must be attributed to the inherent qualities of the "germ plasm" and just how much to the influences of environment. The view which is pretty generally admitted among biologists at present is that there is little warrant for the belief in the Lamarckian hypothesis of the inheritance of acquired characters."

The New York statistical tables on heredity were discontinued in 1907, at which time a total of 104,013 cases had been reported. In 31,290 of these no information was available, leaving a total of 72,622, excluding the not insane. A history of insanity was shown in the paternal branch of the family in 8.6 per cent of the ascertained cases, in the maternal branch in 10.1 per cent, in both

10. Rosanoff, A. J.: On the Inheritance of the Neuropathic Constitution. New York State Hospitals Bulletin, August 15, 1912.
11. White, William A.: Outlines of Psychiatry. 1919.

paternal and maternal in 1.7 per cent, and in collateral branches in eleven per cent,—a total of 31.4 per cent in which some form of heredity was reported. These statistics relate only to insanity in the family history. There were so many sources of inaccuracy that it was not thought worth while to continue these studies after 1907. Comparisons between the heredity of mental cases and that of normal individuals have been rather surprising. Koller, for instance, as quoted by Kraepelin,[12] in a comparison of 370 healthy with a similar number of insane individuals found a history of psychopathic defects in the immediate families of fifty-nine per cent of the former and 76.8 per cent of the latter. Diem [13] in 1905 made an analysis of the family history of 1193 healthy individuals. This was compared with 1850 mental cases. Neuropathic heredity of some kind was found in 78.2 per cent of the mental cases and 66.9 per cent of the healthy individuals. There was, however, a history of mental diseases in the families of 38.3 per cent of the insane patients as compared with 7.1 per cent of the normal individuals. Somewhat different results were noted in a study of the parents. There was a paternal or maternal history of insanity in 18.1 per cent of the families of the mental cases as compared with 2.2 per cent in the cases of the normal individuals. In the direct parentage, Koller found mental diseases in 57.3 per cent of the families of the insane as compared with 28 per cent in the case of normal individuals. Kraepelin states that the influence of the father is greater in heredity than is that of the mother. The father, furthermore, usually transmits to the son while the mother influences the daughter more.

Heredity varies with the psychoses, having its greatest influence in the transmission of manic-depressive attacks, epileptic and hysterical conditions, nervousness,

12. Kraepelin, Emil: Psychiatrie. Eighth edition. Vol. 1. 1909.
13. Ibid.

compulsive and impulsive insanity, sexual perversions and morbid personalities (Kraepelin). As the result of a study of two thousand cases, Pilcz [14] (1907) found that in alcoholism heredity was most likely to manifest itself in the form of alcoholism, epilepsy and imbecility or manic-depressive psychoses. In the progenitors of epileptics he found epilepsy and migraine. Apoplectics showed a family history of paralysis, arteriosclerosis, senile dementia or melancholia. Senile dementia preceded paralysis, arteriosclerosis, feeblemindedness and dementia praecox. Tabes and paralysis apparently frequently precede paralysis and dementia praecox. The various forms of alcoholic psychoses furthermore show a tendency to repeat themselves in the offspring of alcoholics. Similar heredity is said to be the general rule in manic-depressive psychoses, epilepsy and alcoholism, and to a less extent in arteriosclerosis. Heredity, in so far as it is related to mental diseases, may be said to be largely a question of the transmission of a neuropathic or psychopathic constitution or predisposition. Various psychoses are now held to be the direct result of constitutional causes or hereditary influences. This is probably true of manic-depressive insanity, Huntington's chorea, involution melancholia, dementia praecox, paranoia and paranoid conditions, epileptic psychoses, the psychoneuroses and neuroses, psychopathic personality and mental deficiency. It is true that some of these conditions develop as the immediate results of certain predisposing factors and that in frequent instances no evidences of heredity can be found. It is also true that various authorities maintain that a predisposition to the development of certain psychoses may be acquired. If, however, we assume that the above mentioned psychoses are constitutional in their nature and due primarily to heredity, it may be definitely stated that, based on recent

14. Kraepelin, Emil: Psychiatrie. Eighth edition. Vol. 1. 1909.

statistical studies, hereditary influences account for from fifty-five to sixty per cent of the mental cases admitted to our institutions. It may be pointed out, as an objection to this suggestion, that although manic-depressive psychoses often develop in an emotionally unstable or cyclothymic personality and dementia praecox is associated with certain peculiarities of makeup, not all of these cases show clear evidences of constitutional origins. This is unquestionably true. It is equally true, on the other hand, that heredity is also probably very often a factor in the production of the senile and arteriosclerotic conditions, various nervous diseases, alcoholism and drug habits.

When we leave the subject of heredity we are on much more certain ground. There is no question whatever as to the rôle played by traumatism, senility, arteriosclerosis, syphilis, brain and nervous diseases, alcoholism, exogenous toxins, epilepsy, pellagra and somatic diseases in the causation of mental disorders. In an analysis of 4,079 cases examined at the Munich Clinic, Kraepelin[15] found the following factors involved:—1. Physical diseases, infections and gross brain lesions, 1.3 per cent; 2. Syphilis and metasyphilis, 10.3 per cent (general paresis 9.4 per cent); 3. Toxins—alcohol, morphine, cocaine, etc., 22.8 per cent (alcoholic psychoses 22.4 per cent); 4. Traumatic neuroses and prison psychoses, 2.5 per cent; 5. The presenile and senile psychoses, arteriosclerosis, etc., 5.6 per cent; 6. Dementia praecox, epilepsy, idiocy and imbecility, 27.2 per cent; 7. Psychopathic and hysterical states, and manic-depressive insanity, 30.3 per cent. Conditions existing in our hospitals and clinics are somewhat different. As the result of a study of over seventy thousand first admissions to forty-eight hospitals in sixteen different states we are now in a position to speak quite definitely as to the frequency of the condi-

15. Kraepelin, Emil: Psychiatrie. Eighth edition. Vol. 1. 1909.

tions above referred to as etiological factors. Traumatic psychoses quite uniformly represent a little less than one-half of one per cent of the admissions to our institutions. The senile psychoses constitute approximately ten per cent and arteriosclerosis five per cent of the total. General paresis averages about twelve per cent in the New York hospitals and from seven to ten per cent in the other states. Cerebral syphilis amounts to a little less than one per cent of the cases. It should be said that in the large cities the rate for syphilis is, in some instances at least, twice as high as that given. Brain tumor, with all other brain and nervous diseases, only constitutes about one and one-half per cent of our admissions. Alcoholism, which has been responsible for as high as ten per cent of all admissions, from time to time, has been decreasing gradually during the last five years and in New York in 1920 constituted less than two per cent. Epileptic psychoses in our state hospitals amount to from one to two and one-half per cent of the total. As a general rule pellagra is not a factor of any consequence, amounting to less than one-half of one per cent of the admissions. In a few of the southern hospitals large numbers of pellagra are encountered. The psychoses accompanying somatic diseases are represented by from three to four per cent of the whole number. In addition to this, there is still a considerable number of cases reported from the hospitals as being caused by psychic trauma of various kinds. These represent the acute psychoses usually resulting from mental and emotional upsets but with nothing which definitely points to constitutional disorders or hereditary influences.

If we speak of predisposing causes, some reference should be made to the influence of the physiological landmarks which are of so much significance in the life of the individual in more ways than one—puberty, adolescence, the climacterium and the senium. A no less noteworthy

factor in the female sex is the puerperium. These periods of life are of tremendous importance in the development of the psychoses. It is customary to speak of age, sex, race, civil condition, degree of education, climate, civilization, etc., as factors in the production of mental diseases. Not much is to be said on these questions, nor are they closely related to the subject. On January 1, 1920, there were 232,680 patients in the hospitals for mental diseases in the United States. Fifty-two per cent of these were men and forty-eight per cent women. This represents about the difference that has been shown for many years. The reduction in alcoholic psychoses may affect this ultimately. The striking exceptions to this ratio are Massachusetts and New York, where the number of women has slightly exceeded the men for a number of years. The admission rate for men is, however, slightly higher than that for women in both of those states. Less than one-half of one per cent of the patients admitted to the New York hospitals are under fifteen years of age. In that state approximately five per cent have been between fifteen and nineteen years old. In Massachusetts the percentage of persons admitted who were under twenty years of age has averaged 8.5 quite consistently for some time. The admission rate, for twenty to twenty-five, twenty-five to thirty, thirty to thirty-five and thirty-five to forty years of age in Massachusetts and New York has averaged from ten to eleven per cent for each of those periods for several years. From the age of forty to fifty the admission rate is about 8.5 per cent, and from fifty to sixty between five and six per cent. Nine per cent of the admissions in Massachusetts and eight per cent in New York are seventy years of age or over. The statistics on race, birthplace and the psychoses of the various races are shown in detail in the chapter on Immigration. The admission rate in New York is almost exactly the same for the

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married and the unmarried, the former constituting about thirty-nine per cent and the latter forty. In Massachusetts the single first admissions amount to about forty-three per cent and the married approximately forty per cent. Throughout the country generally the unmarried slightly predominate. The percentage of widowed in Massachusetts and New York varies from thirteen to fourteen per cent. The divorced constitute only about one per cent of all admissions. As to education, it may be said that about nine per cent of all first admissions are illiterate, from fifteen to twenty per cent can read and write only, about sixty per cent have had a high school and two per cent a college education. A study of economic conditions shows that from fifteen to seventeen per cent are dependent, from sixty to seventy per cent are rated as marginal, and from eleven to thirteen per cent as being in comfortable circumstances. In Massachusetts and New York about eighty-five per cent of the admissions come from a city environment and from twelve to fifteen per cent from rural communities. It is interesting to note that in 1919 eighteen per cent of the admissions in Massachusetts and New York were reported as being intemperate in their habits, with over fifty per cent abstinent.

In conclusion, it may be said that the important etiological factors in the production of mental disease are heredity, senility, syphilis, arteriosclerosis, somatic diseases, mental deficiency, epilepsy, diseases of the brain and nervous system, alcoholism, drugs, traumatism and mental stress and shocks of various kinds. It is hardly necessary to add that our information on this subject is far from complete.

CHAPTER IX

IMMIGRATION AND MENTAL DISEASES

A history of the development of our western civilization is very largely a study of the process of assimilation of the various racial elements representing a new population. While it must be conceded that we are indebted to European countries for much that has been contributory to the welfare and success of American institutions, it is equally true that the tremendous increase in mental diseases and defects here is to be attributed in no small degree to immigration. This constitutes a problem of social and economic importance which is worthy of serious consideration. Perhaps no better evidence of this fact can be offered than a study of such statistics as are available relating to the thirty-three millions of people coming to the United States from other countries during the last century. This would seem to be particularly indicated at this time, in view of the fact that the conclusion of the war has brought about the necessity of a new adjustment of our relations with other countries.

Immigration to the United States has varied greatly from time to time. It is a well known fact that the founders of our government were practically all of English, Dutch, German or Scotch-Irish extraction. Unfortunately no information of any consequence is available regarding the aliens entering the country prior to 1820, when their study was first undertaken by the federal authorities. As far as can be determined, during the ensuing ten years about 128,000 were admitted at the various ports of entry. The history of immigration since that time has been determined very largely by existing conditions in other countries. The famines and political

disturbances in Ireland between 1840 and 1850 were the occasion of a large influx, concededly of a highly desirable type. The nature of the tide of incoming immigrants was changed by the revolutionary troubles in Germany during the decade following 1848. There was a decrease for a time during the civil war. This was soon followed by a considerable increase which continued quite consistently until the outbreak of the world war. There would at this time seem to be every reason for thinking that an unprecedented invasion can be expected during the next twenty-five years as a result of conditions prevailing abroad unless some restrictions are imposed. In 1850 and 1860 the number of Irish people in the United States exceeded the German born. The 1890 census showed a predominance of the latter race and they have exceeded the Irish element in the population for some time. Nearly a million Germans were admitted between 1880 and 1885. Since 1890, however, the number of Irish and Germans entering have both decreased markedly. After the Spanish-American war a great increase in immigration was noted and the rate of admission per year reached a million in 1905, but the source of supply had entirely changed.

Salmon[1] has shown that in spite of the fact that in 1882 only 12.9 per cent of all incoming aliens admitted were from those countries, eighty-one per cent of all immigration from Europe in 1907 came from Austria-Hungary, Bulgaria, Greece, Italy, Montenegro, Poland, Portugal, Roumania, Russia, Servia, Syria and Turkey. In 1882, 87.1 per cent of those admitted came from England, Germany, Holland, Norway, Sweden, Switzerland and Belgium. The races represented by the new tide of

1. Salmon, Thomas W.: Immigration and the Mixture of Races in Relation to the Mental Health of the Nation. Modern Treatment of Nervous and Mental Diseases. White and Jelliffe. Vol. 1, 1913.

immigration, according to Salmon, were Slavic, thirty per cent, Italian, twenty-six per cent, and Hebrew, fifteen per cent, the remainder being made up of various other miscellaneous elements. This change is shown by the fact that the immigration from Austria-Hungary, which amounted to only 711,926 from 1820 to 1896, increased to 2,303,323 during the first decade of the present century. Five hundred and thirty-four thousand three hundred and thirty-six were admitted from Russia between 1820 and 1896 and 1,756,027 between 1900 and 1911. The Italian immigration, which amounted to 676,826 between 1820 and 1896, increased to 2,228,759 between 1901 and 1911 (Salmon [2]). The numerical status of immigration by decades is shown in the following table:—

From 1831 to 1840	528,721
1841 to 1850	1,604,805
1851 to 1860	2,648,912
1861 to 1870	2,369,878
1871 to 1880	2,812,191
1881 to 1890	5,246,613
1891 to 1900	3,687,564
1901 to 1910	8,795,386
1911 to 1920	6,747,381

A study made by the United States Immigration Commission some years ago showed that of 68,942 foreign born males employed in various mining and manufacturing industries, and who had been in the United States for five years or more, only 33.3 per cent had obtained naturalization papers. Of 246,673 of this same class representing non-English speaking races, only 53.2 per cent had learned the language of this country to any extent. A report made by the Commissioner General of Immigration showed that of 719,906 immigrants over fourteen years of age and admitted from 1899 to 1909, 26.6 per cent could neither read nor write and 29.8 per

2. Salmon, Thomas W.: Immigration and the Mixture of Races in Relation to the Mental Health of the Nation. Modern Treatment of Nervous and Mental Diseases. White and Jelliffe. Vol. 1, 1913.

cent had no occupation. The following table shows the percentage of foreign born in the population of the United States from time to time as stated in official reports:—

1850	9.7 per cent	
1860	13.2 " "	
1870	14.4 " "	
1880	13.3 " "	
1890	14.7 " "	
1900	13.6 " "	
1910	14.7 " "	
1920	12.96 " "	(white only)

The foreign born population naturally varies more or less in different parts of the country. In New York state it was twenty-six per cent in 1870, 23.8 in 1880, 26.2 in 1890, 26.1 in 1900, 29.9 in 1910, and 26.8 per cent in 1920. In Massachusetts it was 30.6 per cent in 1895, 30.2 in 1900, 30.3 in 1905, 31.5 in 1910, 31.2 in 1915, and 28 per cent in 1920.

We have little authentic information relative to the institution population prior to 1903. The United States Census Bureau in its report of 1904 on the insane in hospitals shows that in 1903 there were 140,312 patients, of which number 47,078, or 34.3 per cent, were of foreign birth. The percentage of foreign born in state hospitals in various parts of the country at that time were as follows:—

New York	46.9 per cent
Massachusetts	42.0 " "
New Jersey	39.5 " "
Pennsylvania	30.9 " "
District of Columbia	36.7 " "
Connecticut	35.4 " "
Michigan	43.5 " "
Illinois	41.6 " "
Wisconsin	50.9 " "
Minnesota	63.5 " "
North Dakota	68.4 " "
South Dakota	49.9 " "
Montana	57.8 " "
Nevada	63.1 " "

In 1912 an investigation was made of the foreign born in the New York state hospitals. As a result of the census taken, it was found that of 31,624 patients, 13,728,

or 43.4 per cent, were foreign born. Of this number 4,487 had been naturalized and 9,241, or 29.2 per cent of the total hospital population were aliens. At the Manhattan State Hospital in New York City, out of a total of 4,570 patients 2,526 were foreign born and only 708 had been naturalized. The Central Islip State Hospital at the same time had 4,438 patients. Of this number 2,803 were foreign born and only 891 were naturalized citizens. Thus, at the Manhattan State Hospital 39.8 per cent and at the Central Islip State Hospital 43.1 per cent of the patients were aliens. It was shown that the average hospital residence of the insane in the state was 9.85 years. Based on the maintenance expenditures for 1912 it was estimated that the cost to New York for caring for its 9,241 aliens in the state hospitals was $2,579,902.78 per year, and for their entire hospital residence, over twenty-five million dollars.[3] Of the first admissions to the New York hospitals for the eight years beginning October 1, 1904, and ending September 30, 1910, 46.2 per cent were foreign born. The citizenship of the first admissions for this same period is shown by the following table:—

Year	*Aliens*
1905	28.4 per cent
1906	31.4 " "
1907	32.6 " "
1908	33.9 " "
1909	33.4 " "
1910	33.0 " "
1911	32.9 " "
1912	29.3 " "

It was also shown that 14.7 per cent of the aliens admitted in 1905 had been in the United States less than three years, in 1906, 18.7, in 1907, 21.8, in 1908, 20.1, in 1909, 18.1, in 1910, 15.5, in 1911, 14.9 and in 1912, 18.1 per cent. The birthplace and citizenship of first admis-

3. Twenty-fifth Annual Report of the State Hospital Commission. Albany, 1914.

sions to the New York state hospitals since 1912 is shown in the following table:—

Year	*Foreign born*	*Aliens*
1913	47.0 per cent	22.5 per cent
1914	46.7 " "	25.2 " "
1915	47.0 " "	26.4 " "
1916	48.5 " "	27.8 " "
1917	47.8 " "	27.1 " "
1918	46.4 " "	27.5 " "
1919	46.8 " "	26.4 " "
1920	45.3 " "	24.8 " "

The percentage of the foreign born as shown by the first admissions to the Massachusetts state hospitals during the last eleven years was as follows:—

1910	44.88 per cent	1916	43.87 per cent
1911	44.65 " "	1917	43.40 " "
1912	44.40 " "	1918	43.07 " "
1913	45.30 " "	1919	43.38 " "
1914	45.75 " "	1920	42.18 " "
1915	45.59 " "		

The percentage of aliens as shown by the first admissions to Massachusetts hospitals was 26.40 per cent in 1918, 27.54 in 1919 and 22.73 per cent in 1920.

Studies of the population of the New York state hospitals show that the aliens have for a period of several years constituted nearly thirty per cent of the entire number. The influence which immigration may have had in determining the relative frequency of various psychoses in our institutions is an exceedingly interesting question. In speaking of the susceptibility of certain races to special types of disease, Salmon[4] says, "This is particularly true of mental diseases, for if racial characteristics profoundly affect political, social and religious ideals we must look for a similar influence upon the individual makeup which so largely determines trends in mental disease. All those who are familiar with mental diseases among the Japanese in California testify to the remark-

4. Salmon, Thomas W.: Immigration and the Mixture of Races in Relation to the Mental Health of the Nation. Modern Treatment of Nervous and Mental Diseases. White and Jelliffe. Vol. I, 1913.

able tendency to suicide in that race, not only in depressed conditions but in conditions in which suicidal tendencies, in other races, are not frequent. This is in accordance with the general attitude of the Japanese toward self-destruction. The strong tendency to delusional trends of a persecutory nature in West Indian negroes, the frequency with which we find hidden sexual complexes among the Hebrews and the remarkable prevalence of mutism among Poles, even in psychoses in which mutism is not a common symptom, are familiar examples of the influence of racial traits upon mental diseases." As the result of a special study of this subject Salmon has reached the following conclusions: "1. The psychoses more prevalent among Hebrews than in the native stock are manic depressive psychosis, dementia praecox, the psychoneuroses, and psychoses associated with constitutional inferiority. 2. The absence of alcoholic psychoses among Hebrews is the most striking clinical fact in connection with immigration. In 1909 there were but 3 patients with alcoholic psychoses in 448 Hebrews admitted to all the New York state hospitals. 3. The very high prevalence of general paresis among Italians bears a direct relation to the high prevalence of venereal diseases among Italians in New York. . . . 4. Italians show a freedom from alcoholic psychoses second only to Hebrews. 5. Italians exceed the native born in the prevalence of epileptic psychoses, infective exhaustive psychoses and dementia praecox. . . . 7. From the data available, alcoholic psychoses are found to be more prevalent among Slavs than among any other races of the new immigration, but not as prevalent as among the native-born. 8. General paresis is nearly twice as prevalent among Slavs as in the native-born, but not so prevalent as among the Italians. Dementia praecox is more prevalent among the Slavs than among the native-born."

The racial representation as shown by statistics of

first admissions is fairly constant in New York state, at least, as is shown by the following table of percentages:—

Race	*1916*	*1917*	*1918*	*1919*	*1920*
African	3.1	3.3	3.9	3.7	3.8
English	7.6	5.7	5.1	4.9	5.1
German	14.3	13.5	12.5	11.7	11.7
Hebrew	12.2	11.6	12.2	11.7	10.5
Irish	19.8	19.5	17.3	16.7	16.5
Italian	6.3	6.9	7.1	8.1	8.5
Magyar	.8	.9	1.0	.7	.8
Scandinavian	1.9	2.2	2.2	2.1	2.0
Slavonic	5.7	5.8	5.7	5.4	6.0
Mixed	12.4	16.0	23.6	23.3	24.1
Others	5.7	5.6	4.4	4.9	6.2
Unascertained	10.2	9.0	5.0	6.9	4.8

The 1916 report of the Commission on Mental Diseases shows the following analysis of the nativity of the 34,300 first admissions to the Massachusetts state hospitals covering a period of thirteen years (1904-1916):—

Birthplace	*Number*
United States	18,757
Africa	7
Armenia	66
Austria	319
Azores	187
Canada	3,315
England	1,359
Finland	250
Germany	486
Greece	129
Ireland	5,033
Italy	719
Nova Scotia	136
Poland	190
Russia	1,139
Scotland	381
Sweden	539
Turkey	100

It should be borne in mind that these statistics represent birthplace and not race. An analysis of the above figures shows that 54.68 per cent were born in the United States and 44.42 per cent in other countries. Of the other countries represented, 3.96 per cent were born in England, 3.32 per cent in Russia, 9.63 in Canada and 14.67 per cent in Ireland.

A comparison of the more important psychoses represented by the various races, as reported by the New York State Hospital Commission in 1918, is shown in the following table [5]:—

Psychoses	Per Cent of Total First Admissions of Each Race						
	African	German	Hebrew	Irish	Italian	Slavonic	Mixed
Senile	5.2	11.6	5.8	13.2	6.2	1.6	10.2
General paralysis	21.3	17.3	13.3	9.9	19.1	6.7	13.1
Alcoholic	5.2	4.5	0.2	10.6	2.3	10.3	4.5
Manic-depressive	12.4	12.2	24.0	9.8	22.0	14.0	12.4
Dementia praecox	29.6	25.5	35.2	26.7	26.6	47.3	24.0

Some variation is shown by a similar analysis of the New York admissions for the year 1919, as is illustrated by the following table [6]:—

Psychoses	Per Cent of Total First Admissions of Each Race						
	African	German	Hebrew	Irish	Italian	Slavonic	Mixed
Senile	8.0	12.7	6.9	14.9	4.9	1.6	11.5
General paralysis	15.7	15.1	11.5	12.0	16.2	9.2	12.3
Alcoholic	4.0	4.0	0.4	7.9	2.4	7.0	3.0
Manic-depressive	10.4	13.7	21.6	11.1	20.6	17.6	13.1
Dementia praecox	31.3	24.2	32.0	25.5	29.7	42.3	23.8

For purposes of comparison an analysis of the psychoses shown by various races in the admissions of the Massachusetts state hospitals for a period of three years is added (1917-1918-1919):—

Race	No.	Senile Psychoses	Arterio-sclerosis	General Paresis	Alcoholic	Manic-Depressive	Dementia Praecox
African	211	5.68%	4.73%	6.16%	7.10%	4.26%	27.96%
English	3281	10.75	9.87	7.46	5.76	9.99	18.65
French	647	6.64	6.95	12.05	8.19	6.80	24.88
German	283	6.00	7.77	10.60	9.92	12.01	21.20
Hebrew	353	.56	2.26	5.66	1.41	10.19	37.11
Irish	2994	9.01	7.11	7.11	16.13	7.11	23.31
Italian	522	3.44	2.66	7.66	5.34	10.34	35.44
Mixed	1244	8.76	12.62	7.70	8.11	7.55	24.35
Slavonic	635	6.77	7.08	12.28	8.35	6.93	25.20

This shows some very interesting results. It will be noted that the Hebrews and Italians have the highest rate for dementia praecox, the percentage shown by

5. Thirtieth Annual Report of the State Hospital Commission. Albany, 1919.
6. Thirty-first Annual Report of the State Hospital Commission. Albany, 1920.

these races being much higher than any of the others. The Germans, Italians and Hebrews, in the order mentioned, have the highest rates for manic-depressive psychoses. The frequency of alcoholic psychoses as shown by the Irish is nearly double that of any of the others. The Slavonic race has the highest rate for general paresis, followed in close succession by the French and Germans. The highest rate for senile and arteriosclerotic psychoses combined is shown by the races of mixed origin, the next highest by the English, closely followed by the Irish. The most common psychosis in every instance is dementia praecox. In the admissions to the institutions for the criminal insane in New York the highest percentages are represented by the Irish, Italian and Hebrew races, as shown in another chapter. During a period of six years (1912 to 1918) a study of first admissions to the New York state hospitals shows an incidence of dementia praecox in the native-born of 75.2 per hundred thousand of the population and in the foreign born of 161.4. The importance of this is shown by the fact that over fifty per cent of the entire hospital population is made up of cases of dementia praecox.

The necessity of some supervision of immigration for the purpose of preventing the entrance of undesirable aliens has long been recognized. As early as 1824 the state of New York tried by legislation to prevent the admission of the insane and mental defectives. This effort was a failure, probably owing to the fact that the proposed enactments would have compelled the companies responsible for the entrance of undesirable aliens to remove them if they became a public charge. The introduction of discordant racial elements from abroad at one time disturbed the equilibrium of the entire country. The agitation for the restriction of immigration before the civil war led to the formation of a political organization known as the "Native American" or "Know Noth-

ing" party, as it was usually called. It at one time had forty representatives in Congress and nominated a candidate for President in 1856. These disturbed conditions led to the consideration of this subject by Congress as early as 1838 and the Judiciary Committee recommended legislation prohibiting the entrance of idiots, lunatics and those suffering from incurable diseases or convicted of crime. The action of several foreign countries in pardoning murderers with the provision that they should emigrate to the United States led to a resolution of protest by Congress in 1860 and shortly thereafter a statute intended to encourage immigration was repealed. An investigation made by the United States Immigration Commission brought to light the fact that the great influx of foreigners was largely caused by the agents of the steamboat companies abroad and that they had "five or six thousand ticket agents in Galicia alone."[7]

The activities of those opposed to the indiscriminate entrance of objectionable aliens led to the federal enactment of August 3, 1882. The Secretary of the Treasury was charged with the duty of prohibiting the landing of lunatics, idiots and persons liable to become a public charge. The provisions for the execution of this law were not satisfactory and it was amended by an act of 1891. This made it a misdemeanor to bring in any of the above proscribed classes and imposed a fine of over one thousand dollars upon anyone guilty of so doing. Section 11 provided that aliens entering in violation of this law could be returned at any time within one year thereafter at the expense of the person or persons, vessel, transportation company or corporation responsible for their entry, and further, that those becoming public charges within one year from causes existing prior to landing should be considered as having entered in viola-

7. Salmon, Thomas W.: Immigration and the Mixture of Races in Relation to the Mental Health of the Nation. Modern Treatment of Nervous and Mental Diseases. White and Jelliffe. Vol. I, 1913.

tion of law. The provisions of this statute were unchanged until the act of March 3, 1903. This excluded persons insane within five years previous to landing, those having had two or more previous attacks at any time, paupers and all others liable to become a public charge. Section 17 delegated to the officers of the United States Public Health Service the duty of determining the condition of all immigrants. Section 20 provided that aliens coming to the United States in violation of law, or who were found to be public charges from causes existing prior to landing, could be deported at any time within two years. Section 21 authorized the Secretary of Commerce and Labor to deport any alien within three years of entering in violation of the act.

An important step in the legislative restriction of immigration was the amendment of Feb. 20, 1907. This made mandatory the exclusion of idiots, imbeciles, the feebleminded, epileptics, insane, all who had been insane within five years and persons having had two or more attacks of insanity at any time, or who were likely to become a public charge, as well as individuals not comprehended in the foregoing excluded classes but found to be suffering from mental or physical defects of such a nature as to affect their ability to earn a living. Section 20 provided that an alien entering in violation of law or becoming a public charge from causes existing prior to landing should, upon the warrant of the Secretary of Commerce and Labor, be taken into custody and deported to the country from whence he came at any time within three years after the date of his entry into the United States. The cost of this removal was to be a charge upon the owners of the vessel or transportation line immediately responsible. When the mental or physical condition of the alien was such as to require personal care or attention, the Secretary of Commerce and Labor was authorized to employ a suitable person

for that purpose. This was a great step in advance. There were, however, some very great difficulties to be overcome. The force placed at the disposal of the Public Health Service for the inspection and examination of incoming immigrants was entirely inadequate and one or two men were sometimes responsible for the examination of several thousands aliens in a day. This was, of course, impossible. The burden of proof in showing that the mental condition was due to causes existing prior to landing, furthermore, devolved upon the persons requesting deportation. It was impossible in many instances to submit actual proof even where there could be no reasonable doubt as to the facts. This led to great difficulties and much dissatisfaction. Another serious objection to the provisions of this law was the requirement that only such persons could be deported as were likely to become a public charge. In many instances such persons were supported by private funds until they were no longer deportable, after which they became a burden upon the state in which they resided.

These conditions were much improved by the action of the Sixty-fourth Congress in 1917. This definitely excluded "all idiots, imbeciles, feebleminded persons, epileptics, insane persons; persons who have had one or more attacks of insanity at any time previously; persons of constitutional psychopathic inferiority," etc., or "persons not comprehended within any of the foregoing excluded classes who are found to be and are certified by the examining surgeons as being mentally or physically defective" or persons likely to become a public charge. Section 9 provided that it shall be unlawful for any person, "including any transportation company," to bring either from a foreign country or any insular possession of the United States any alien afflicted with idiocy, insanity, imbecility, feeblemindedness, epilepsy, constitutional psychopathic inferiority, etc., and subjected to a

fine any person or persons so doing. The Secretary of Labor was also authorized to detail inspectors and matrons to duty on vessels carrying immigrants, who shall "report to the immigration authorities in charge at the port of landing any information of value in determining the admissibility of such passengers that may have become known to them during the voyage." It also provided that a mental examination of all arriving aliens should be made by medical officers of the United States Public Health Service who shall certify all mental defects or diseases observed. "Medical officers of the United States Public Health Service who have had special training in the diagnosis of insanity and mental defects shall be detailed for duty or employed at all ports of entry designated by the Secretary of Labor." Section 19 provided that any alien "who within five years after entry becomes a public charge from causes not affirmatively shown to have arisen subsequent to landing" shall, upon warrant of the Secretary of Labor, be taken into custody and deported. The act also made provision for the first time for a literacy test which has been a subject of discussion for years. These amendments are of far-reaching importance and will eventually undoubtedly afford the hospitals considerable relief. The fact still remains, however, that the individual states are expending millions of dollars annually for the care and maintenance of an alien population which should have been excluded by the federal government. Under these circumstances it would seem nothing more than fair that the states should be reimbursed for the cost of carrying a burden for which they are in no way responsible.

CHAPTER X

MENTAL DISEASES AND CRIMINAL RESPONSIBILITY

The question of responsibility for criminal acts, once a legal problem pure and simple, is now recognized as involving sociological, psychological and psychiatric considerations of far-reaching importance. This viewpoint, none too thoroughly established even now, represents the progress of several centuries, and still lacks adequate recognition in law. The eloquent protest against the legal conception of mental diseases written by Isaac Ray [1] in 1838 sounds like a quotation from a recent medical journal. "In all civilized communities, ancient or modern, insanity has been regarded as exempting from the punishment of crime, and vitiating the civil acts of those who are affected with it. The only difficulty, or diversity of opinion, consists in determining who are really insane, in the meaning of the law, which has been content with merely laying down some general principles, and leaving their application to the discretion of the judicial authorities. . . . It is to be feared, that the principles, laid down on this subject by legal authorities, have received too much of that reverence which is naturally felt for the opinions and practices of our ancestors; and that innovations have been too much regarded, rather as the offspring of new-fangled theories, than of the steady development of medical science. In their zeal to uphold the wisdom of the past, from the fancied desecrations of reformers and theorists, the ministers of the

1. Ray, Isaac: A Treatise on the Medical Jurisprudence of Insanity. 1838.

law seem to have forgotten, that, in respect to this subject, the real dignity and respectability of their profession is better upheld, by yielding to the improvements of the times, and thankfully receiving the truth from whatever quarter it may come, than by turning away with blind obstinacy from everything that conflicts with long established maxims and decisions."

A brief reference to the history of the development of the present legal conceptions of criminal responsibility will justify the comments made by Ray. The terms idiocy, lunacy and non compos mentis were all used by Coke in his "Institutes of the Laws of England" written, as nearly as can be determined, in 1625. A differentiation between the significance of the word idiot and non compos mentis appeared as early as 1325 in the English statute "De Praerogativa Regis," which delegated various responsibilities to the crown that are recognized to this day. Sir Matthew Hale, about 1670, described a partial and a total insanity, the former not being accepted as relieving the accused of responsibility for the commitment of a crime. It is an interesting fact that we still hear the question of partial insanity seriously discussed. In 1723 Justice Tracy in a murder trial ruled that "a prisoner in order to be acquitted on the ground of insanity must be a man that is totally deprived of his understanding and memory, and doth not know what he is doing no more than an infant, than a brute or a wild beast." As a result of this ruling a man was found guilty of attempting to murder a neighbor who sent devils and imps into his house at night for the purpose of disturbing his sleep. Fortunately the sentence was commuted to life imprisonment. In 1812 the Attorney General of England[2] ruled that "a man may be deranged in his mind—his intellect may be insufficient for enabling him

2. Ray, Isaac: A Treatise on the Medical Jurisprudence of Insanity. 1838.

to conduct the common affairs of life, such as disposing of his property, or judging of the claims which his respective relations have upon him; and if he be so, the administration of the country will take his affairs into their management, and appoint to him trustees; but, at the same time, such a man is not discharged from his responsibility for criminal acts."

The legal procedure of the present day is based very largely on the decisions made at the time of the McNaughton trial in 1843. In this case the Chief Justice, as quoted by Lord Lyndhurst, addressed the following words to the jury: "The point which at last will be submitted to you will be whether or not on the whole of the evidence you have heard you are satisfied that at the time the act was committed, for the commission of which the prisoner stands charged, he had not that competent use of his understanding as not to know what he was doing with respect to the act itself—a wicked and wrong thing—whether he knew it was a wicked and a wrong thing he had done, or that he was not sensible at the time he committed this act that it was contrary to the laws of God and man." This case led to a very serious consideration of the subject in the House of Lords. As the result of an official request for an opinion, the majority of the judges of the court, all concurring but one, expressed the view that "to establish a defense on the ground of insanity, it must be clearly proved that at the time of the committing of the act the accused party was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or if he did know it (sic) that he did not know he was doing what was wrong."[3]

The importance and significance of these decisions, which one might very readily assume to be obsolete and

3. Tuke, D. Hack: A Dictionary of Psychological Medicine. 1892.

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too ancient to be worthy of consideration, will be made clear by a quotation from the penal code in effect in New York today. "Sec. 1120 (Penal Law). Incompetency of idiot or lunatic. An act done by a person who is an idiot, imbecile, lunatic or insane is not a crime. A person cannot be tried, sentenced to any punishment or punished for a crime while he is in a state of idiocy, imbecility, lunacy or insanity so as to be incapable of understanding the proceeding or making his defense. A person is not excused from criminal liability as an idiot, imbecile, lunatic or insane person except upon proof that, at the time of committing the alleged insane act, he was laboring under such a defect of reason as 1, not to know the nature and quality of the act he was doing; or 2, not to know that the act was wrong." It will, I think, be conceded that we have, at least, not lost ground in any way since 1843.

No less interesting is the legal definition of insanity in Massachusetts: "The words 'insane person' and 'lunatic' shall include every idiot, non compos, lunatic and insane and distracted person." (Chapter 4, Sec. 7, General Laws of Massachusetts.) In New York the terms lunatic and lunacy include every kind of unsoundness of mind except idiocy. (Chapter 22, Sec. 28, Consolidated Laws.) This would presumably include psychopathic personality and imbecility.

Numerous court decisions have had a material bearing on the subject of responsibility. It has been held in New York that partial or incipient insanity is not a sufficient defense if there is still an ability to form a correct perception of the legal quality of the act and to know that it was wrong. (People vs. Taylor, 138 N. Y. 398, 407 (1893)). A weak or disordered mind is not excused from the consequences of crime. (People vs. Burgess, 153 N. Y. 561, 569 (1897)), etc. Generally speaking, the legal methods of determining criminal responsibility do not

vary to any material extent with the different states. It is obvious that the responsibility for crime as defined by the courts is far from harmonizing with the conception of competency entertained by the medical profession. To the psychiatrist, if the criminal act is the result of the mental condition it constitutes a symptom of the disease process. It is readily apparent from even a very brief reference to the statutes that a person concededly suffering from paranoia, general paresis, dementia praecox or any other well-defined psychosis is still criminally liable for his insane acts within certain limitations. From a medical point of view the existence of a psychosis, if associated with a consequent judgment defect, emotional instability, disturbance of volition, intellectual deterioration, delusional and particularly persecutory control, hallucinatory trends, ideas of reference, etc., is of itself quite sufficient to explain criminal acts in the insane. This, however, as has been shown, is not the legal point of view. The accused is fully responsible unless it can be shown that he is suffering from such a defect of reason as not to appreciate the quality or nature of his act or that the act is wrong. There is no other legal standard. It is a well-known fact that many persons adjudged insane by the courts and committed to our institutions are fully competent to discriminate between right and wrong from an ethical point of view, although legally held to be incompetent and unsafe to be at large. These divergent viewpoints presumably are due to the fact that the law moves only with a degree of dignity which theoretically guarantees absolute security in avoiding any possible sources of error. It nevertheless is responsible for many miscarriages of justice.

Efforts to remedy this state of affairs have been made repeatedly by the medical profession. The American Psychiatric Association has devoted a great deal of time and attention to this subject, unfortunately without any

very concrete results. The last official action taken was the unanimous approval of the following resolutions:—[4]

"Resolved: 1. That the proved rarity of wrong acquittals on the ground of insanity is the strongest evidence that the abuse of the insanity plea in criminal cases has been unwarrantably exaggerated.

"2. That the insanity plea is not by any means raised as often as it should be, to prevent the frequent miscarriage of justice arising from the conviction and imprisonment of insane persons whose true mental condition has not been recognized.

"3. That the abuses which have crept into the method of presenting medical expert testimony have been largely the result of established legal tests and procedures, although their correction does not require radical change in the laws.

"4. That inaccessibility of the evidence on both sides of the case is the chief cause of defective medical testimony.

"5. That whenever possible the medical witness should not testify unless he has had an opportunity to make both a mental and a physical examination of the person in whose behalf the plea of insanity is raised.

"6. That we consider the hypothetical question as ordinarily presented to be unscientific, misleading and dangerous to medical repute and that the evidence on both sides should always be included in its presentation to medical witnesses.

"7. That in all criminal cases absolutely equal rights should be accorded the medical witnesses for both the prosecution and the defence for the examination of the person alleged to be insane.

"8. That in our judgment the judiciary should by

4. Report of the Committee on Medical Expert Testimony. Transactions of the American Medico-Psychological Association. 1910.

legal enactment be allowed more latitude in enlightening the jury and enabling it to comprehend the nature and meaning of the medical testimony laid before it.

"9. That we recommend as advisable the adoption wherever possible of the so-called Leed's method of preliminary consultation by medical witnesses on both sides of the case as to its status.

"10. That we advocate a freer use of appointments of commissions by the court.

"11. That a period of hospital observation of all persons committing crimes in whose defence the plea of insanity has been raised is by far the best method yet devised for securing impartial and accurate opinions, silencing popular clamor, avoiding prolonged and sensational trials and saving expense to the State; also that we advocate the enactment in every State of laws similar to those of Maine, New Hampshire, Vermont and Massachusetts, providing that such persons may be committed by the court to a State hospital for the insane there to remain for such time as the court may direct pending the determination of their insanity.

"12. That it is the sense of the Association that it is subversive of the dignity of the medical profession for any of its members to occupy the position of medical advisory counsel in open court and at the same time to act as expert witness in a medico-legal case.

"13. That we regard the acceptance by a physician of a fee that is contingent upon the result of a medico-legal case as not in accordance with medical ethics and derogatory to the good repute of the profession, and advocate the regulation of the practice by legislation.

"14. That we are in favor of any legislation that will secure a definite standard of qualification for medical men giving expert testimony."

An equal amount of consideration has been given to this important question from time to time by the Ameri-

can Institute of Criminal Law and Criminology. At a recent meeting of that organization the following recommendations were submitted by a committee:—

"1. That in all cases of felony or misdemeanor punishable by a prison sentence the question of responsibility be not submitted to the jury, which will thus be called upon to determine only that the offense was committed by the defendant.

"2. That the disposition and treatment (including punishment) of all such misdemeanants and felons, i.e., the sentence imposed, be based upon a study of the individual offender by properly qualified and impartial experts cooperating with the courts.

"3. That provisions be made permitting the transfer of such misdemeanants and felons at any time after conviction from one institution to another affording a different kind of treatment upon the presentation of evidence of the needs for such action satisfactory to the court which passed sentence.

"4. That no maximum term be set to any sentence.

"5. That no parole or probation be granted without suitable psychiatric examination.

"6. That in considering applications for pardons and commutation careful attention be given to reports of qualified experts showing the applicant's mental age and mental stability and that in drafting statutes determining or defining juvenile delinquency, mental age and mental stability, within reasonable limits, be regarded as of importance with the calendar age of the delinquent.

"In view of the foregoing and as an initial step towards the ends stated, the committee submits the following resolution and urges its immediate adoption:

"Resolved, That the several states be urged to make provision for the psychiatric examination, under conditions permitting prolonged observation when necessary, of all persons convicted of a felony, misdemeanor or

other offense by properly qualified experts appointed to assist the court in reaching a decision as to the proper disposition and treatment of the offender."

The courts, the medical profession and the public have shown indications of a decided dissatisfaction with existing methods of determining criminal responsibility. This will certainly continue as long as the sole test of competency is the power of the accused to discriminate between a knowledge of right and wrong at the time when the act is committed. The conditions which lead to crime have been made the subject of scientific study by many. One of the early investigators in this field was Morel, who saw in the criminal a personification "of the various degenerations of the species." Much has been said of "moral insanity," a condition referred to by Abercromby as one "in which all the upright sentiments are eliminated while the intelligence presents no disorders." Lombroso advanced the theory that criminality is a form of atavism —a reversion of man to the primitive and savage type represented by his early ancestors. This theory was based on a careful study of the anatomical, physiological and psychological characteristics of primitive man. His classification included the occasional, the emotional, the born criminal, the moral insane, and the masked epileptic. Marro offered an anatomical basis for the degenerative theory in the form of nutritional defects in the central nervous system. Ferri distinguished between criminal lunatics and emotional criminals and held crime to be "a phenomenon of complex origin and the result of biological, physical and social conditions." "Habitual criminals," he says, "are the victims of a clear, evident and common mental alienation which causes the criminal activity," while the occasional offenders are to be explained by "the impulse of opportunities more than the innate tendency that determines the crime." The emotional criminal, according to Ferri, is a sane and moral

individual overcome by momentary emotional paroxysms referred to as a "psychologic storm." Garofalo, on the other hand, looked upon crime as "an offense against the fundamental altruistic sentiments of pity and probity." From his point of view a criminal act was an indication of the loss of a proper sense of appreciation of the life or property of another—a moral anomaly. The Italian school of criminology was responsible also for the theory that criminal acts are only the expression of epileptic symptoms. Sociological workers have attributed crime to influences which overcome the natural resistance of the individual, a variation from which is merely an inability of the person to conform to the laws of environment. Max Nordau sees in human failings only an abnormality which he describes as "human parasitism." Others look upon crime as the natural product of a modern social and economic system. Colajanni ascribes alcoholism, vagrancy and prostitution to poverty, but crime, he says, is "due to necessity and to the degree and kind of education received." In the light of our present knowledge the conclusion would appear to be warranted that crime is the result of constitutional defects in the form of hereditary tendencies and arrested mental development, educational defects, a deterioration of habits as shown by alcoholism, etc., accidental influences such as environment and poverty, pathological conditions, including epilepsy and insanity, and precipitating factors in the form of emotional disturbances.

Criminality, alcoholism, poverty, prostitution and mental deficiency are closely correlated. A special committee appointed by the New York State Prison Commission has made an exceedingly interesting report [5] on the relation existing between mental disease and crime. Their investigation shows that 21.8 per cent of 608 cases

5. Anderson, Victor V.: Mental Disease and Delinquency. Mental Hygiene, April, 1919.

at Sing Sing, thirty-five per cent of 459 men at Auburn, twenty-two per cent of three hundred men at the Massachusetts State Prison, twenty-eight per cent of forty-nine women at Joliet, twenty-five per cent of seventy-six women at Auburn, twenty-three per cent of one hundred cases at the Indiana State Prison and thirty per cent of 150 examined at San Quentin were found to be mentally defective. An average of 27.5 per cent has been found in the prison population as a whole. Thirty-one and four-tenths per cent of the inmates of reformatories, training schools, workhouses and penitentiaries were found to be feebleminded. From twenty-seven to twenty-nine per cent of the inmates of penal and correctional institutions of the country were said to be defective. About thirty per cent of the population of the penal institutions for women in New York were found to be feebleminded. A study of 502 selected cases at the Psychopathic Laboratory of the Police Department of New York City in 1917 showed that fifty-eight per cent were suffering from either nervous or mental abnormalities. Of one thousand offenders examined by the medical service of the Boston Municipal Court twenty-three per cent were feebleminded, 10.4 per cent, psychopathic, 3.17 per cent, epileptic and nine per cent, mentally diseased and deteriorated; 45.6 per cent in all showed abnormal mental conditions. It has been shown that one of the most important causes of recidivism is mental deficiency. The importance of this observation may be illustrated by the fact that of 133,047 persons admitted to the penal and correctional institutions of New York state sixty per cent had served previous terms. Of 25,820 persons received at institutions in Massachusetts during one year, 57.4 per cent were recidivits. Justice Roads is responsible for the statement that of 180,000 convictions in England in one year more than ten thousand represented persons convicted upwards of twenty times previously.

The mental condition of the cases committed to the Matteawan State Hospital is of great importance in a consideration of the relation of crime to the psychoses. Of 2,595 cases admitted between 1875 and 1907 heredity or congenital defects were shown as etiological factors in eight per cent of the total number. Of 793 admissions in which more definite and reliable information was available, hereditary factors were noted in either the paternal or maternal branches of the family or both in thirty-five per cent of the cases. In addition to this, heredity was found in collateral branches in sixteen per cent. Heredity of some kind was thus shown in 51.3 per cent of the whole number studied. Of 3,247 admissions, 46.9 per cent were noted as being intemperate in their habits. An analysis of 576 unconvicted cases in 1912 [6] showed that 41.4 per cent were diagnosed as dementia praecox, 21.1 per cent as alcoholic psychoses, 6.9 per cent as paranoid conditions, 4.1 per cent as epileptic psychoses, 7.1 per cent as imbecility with excitements, 2.9 per cent as manic-depressive psychoses, 2.4 per cent as general paresis, 3.1 per cent as undifferentiated depressions, 6.7 per cent as constitutional inferiority and 2.2 per cent as not insane. An analysis of 925 cases committed as insane and charged with criminal offenses atributable to their mental condition shows the more common crimes as follows:—assault (all forms), 26.2 per cent, burglary, 7.8, grand larceny, 8.2, petit larceny, 1, manslaughter, 1.4, murder, 18.9, homicide (total), 22.4, rape, 3.2, and vagrancy, 4.2 per cent.

Nolan [7] has made an analysis of 646 first admissions to Matteawan during a period of six years (1912 to 1918). Forty-eight per cent of these were found to have

6. May, James V.: Mental Diseases and Criminal Responsibility. New York State Hospitals Bulletin, November, 1912.
7. Nolan, William J.: Some Characteristics of the Criminal Insane. The State Hospital Quarterly, May, 1920.

been born in foreign countries. A striking observation was the large proportion of male cases born in Italy (10.8 per cent) and the female cases born in Ireland (11.7 per cent). Of the various races represented it was noted that the African, which was only responsible for 3.9 per cent of the admissions to civil hospitals, constituted 7.4 per cent of the Matteawan admissions. The races having the largest representation were the Irish (18.7 per cent), the Italian (12.4 per cent) and the Hebrew (10.8 per cent). The mixed races constituted 11.3 per cent of the admissions as compared with twenty-three per cent of the cases reported from civil institutions. Among the male cases 11.4 per cent were charged with disorderly conduct and 26.47 per cent with vagrancy. Of the women, eighteen per cent were charged with disorderly conduct, 16.4 with public intoxication and 39.8 per cent with vagrancy and prostitution. These three groups represent 74.2 per cent of all of the female cases admitted. Of the 646 criminal acts causing commitment, 34.1 per cent were classified from a legal point of view as felonies and 65.9 per cent as misdemeanors. Only 5.3 per cent were charged with murder, manslaughter, etc. Of the various psychoses represented by these cases 26.9 per cent were diagnosed as dementia praecox, seventeen per cent as alcoholic psychoses, 14.7 per cent as constitutional psychopathic inferiority, 7.3 as mental deficiency, 8.3 as manic-depressive psychoses, 11.3 as general paresis, 3.6 as senile psychoses, 2.0 as paranoia or paranoid conditions, 2.2 as epileptic psychoses, and 1.4 per cent as not insane. The alcoholic, constitutionally inferior and mentally defective group constituted thirty-eight per cent of the total. Of the 165 cases diagnosed as dementia praecox it is interesting to note that eleven were charged with homicide, ten with assault in the first degree, fifteen with burglary, thirteen with petit larceny, fourteen with disorderly conduct, and sixty-six with vagrancy or pros-

titution. Of the seventy-four cases of general paresis thirteen were charged with petit larceny, eleven with disorderly conduct, and twenty-nine with vagrancy or prostitution. The homicides and assaults were committed principally by the alcoholic, dementia praecox, constitutionally inferior and the defective cases. The burglaries and larcenies were committed largely by patients diagnosed as suffering from general paresis, dementia praecox and constitutional psychopathic inferiority.

The type of cases received at an institution exclusively for insane convicts is naturally quite different, as shown by the admissions to the Dannemora State Hospital in New York. Of 185 admissions covering a period of three years the principal psychoses represented were dementia praecox, forty-one per cent, constitutional psychopathic inferiority, nineteen per cent, manic-depressive psychoses, eight, mental deficiency, nine, alcoholic psychoses, five, paranoid conditions, four per cent, etc.

Experience has shown that the defective criminal classes are not suitable cases for either penal institutions or hospitals for the insane. They are unable to adapt themselves to prison discipline or hospital routine and prefer to associate only with persons of their own kind who are given to foolish boasting of their crimes as their least harmful diversion. They are entirely unappreciative of any efforts made on their behalf to improve their condition or fit them in any way for the requirements of society. They are strongly inclined to unprovoked cruelty to others. Often they manifest an apparent interest in religious services, thinking it may lead to some preferment, but not for any moral reason. They are notoriously untruthful, unreliable and exhibit a low cunning which often deceives those not familiar with handling individuals of that type. Curiously enough they are exceedingly critical of others and quick to notice their shortcomings. Sexual perversions and immoral conduct

are only too common. Prostitution, as has already been shown, is one of the most common failings of the female delinquent. An interesting but superficial knowledge of legal matters is noted very frequently and paraded with a remarkable degree of egotism which is difficult to understand. It is comparatively an infrequent occurrence for a prisoner to admit that he is guilty of the crime of which he has already been convicted by a court. Only a fews years since, a prisoner at Sing Sing wrote the Governor of New York suggesting that his release was indicated as a moral procedure for the good of the institution, as he was convinced from information obtained from others that he was the only guilty man in the establishment. The habitual criminal takes little, if any, interest in his own relatives or family except when he is in confinement, and feels no home ties. There is a curious lack of appreciation for the gravity of his own offense and he always complains of a "frame up" and asserts that he has not had a square deal. Homicides even are always explained in an attempt to show that they were justifiable or unavoidable. The most vicious of assaults are often committed on their fellow prisoners without any provocation of consequence. Experience shows that as a rule they are incapable of any sustained effort and accomplish little or nothing when left to themselves. Tendencies to crime show not only a marked suggestibility but a degree of impulsiveness and a lack of self control which is highly significant.

Another type of institution for this special group of cases is strongly indicated. They should be held under an indeterminate sentence and in some instances committed for life. As a result of hereditary defects, arrested mental development, ignorance and vicious tendencies this class furnishes the prisons with our most dangerous criminals. They should receive separate care, with an opportunity for a special education adapted to their indi-

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vidual needs. The defective classes have for centuries been held criminally responsible and have filled our prisons with incorrigibles and recidivists. Modern civilization should place at our disposal some means for remedying this situation other than mere punishment for the possession of an intellectual endowment for which these individuals are in no way responsible. The ends of justice can be served and the protection of the public assured at the same time by a form of medical treatment for the defective delinquent which will look forward to his ultimate restoration to society rather than a form of punishment which accomplishes nothing.

CHAPTER XI

THE PSYCHIATRY OF THE WAR

The psychiatry of the late war is of unusual interest from various points of view. Never before have mental diseases or defects been looked upon as military problems worthy of any special attention either in times of war or peace. It is true that the United States government has maintained a hospital for the treatment of such conditions at Washington for many years, and medical officers from the army and navy have been sent to that institution for instruction, from time to time. No adequate provision has been made, however, in previous wars for the special care or observation of the psychoses or neuroses, nor has any great consideration been given to a determination of the mental status of recruits. It is, of course, equally true that modern military methods have brought about different conditions and given rise to new problems. In 1917 and 1918 definite psychiatric organizations were established by the United States army for the first time. The services of specialists in mental diseases were utilized extensively and they were ultimately assigned to practically all of the large hospitals. Division consultants were soon found necessary and the active cooperation of practically every psychiatrist available in the country was required before the armistice was declared.

This was directly due to the fact that for the first time in history one of the most important problems, with which the military authorities had to deal, was the question of mental diseases and defects. For purposes of comparison and the intelligent consideration of this important subject, the incidence of mental diseases in the

army in the past is of considerable interest. The rate in enlisted men, as shown by the Surgeon General's reports, varied from 1.08 per thousand in 1898 to 1.73 in 1911, and was 2.72 in 1900, the only year in which it went above two. In 1912, 1913, 1914 and 1915, when defective mental development, constitutional psychopathic states, hypochondriasis and nostalgia were included in the reports the rates per thousand were respectively 3.45, 3.44, 4.18 and 3.82. The frequency of psychoses was higher in the men serving in the Philippines—2.07 in 1898, 2.79 in 1900, 1.45 in 1905 and 2.01 in 1911.

The ratio of mental diseases in the American and English armies has been higher for many years than in the French, Italian, Russian and German forces. Universal military service is supposed to have been the factor producing this difference, the larger establishments naturally more nearly representing the normal insanity rate of the country. From May 1, 1861, to June 30, 1866, in other words, during the civil war period, there were 198,849 discharges for disability from the United States army.[1] Of this number 819 men were discharged on account of insanity, 3,872 for epilepsy and 2,838 for various forms of "paralysis." Based on the mean annual strength of the army, this represented a rate of .34 per thousand for insanity, 1.6 for epilepsy and 1.17 for paralysis. Based on the total number of discharges alone, it represented a rate of 6.0 per thousand for insanity, 20.8 for paralysis, and 28.3 for epilepsy or a rate for the three combined of 55.1 per thousand. These statistics are for white soldiers only. The rate for colored troops, based on the total discharges, was seven per thousand for insanity, 14.3 for paralysis and thirty-six for epilepsy. No information whatever is available as to what the term paralysis includes in these reports. The rate per thou-

1. Medical and Surgical History of the War of the Rebellion. Part Third. Vol. 1, 1888.

sand in the United States army, as has been shown, increased from approximately one in 1898 to three in 1901, during the Spanish war, Philippine insurrection, etc., and dropped back to one again in 1903. Weygandt,[2] who made a study of war neuroses and psychoses in 1904, gives the insanity rate per thousand of the German army during the Franco-Prussian war as .54, the American troops during the Spanish war as 2.7, the British army during the Boer war as 2.6, the Russian army during the Japanese war as 2.0, and the Bulgarian troops during the Balkan campaign .33. The German expeditionary corps engaged in Southwestern Africa reported 4.95 per thousand and a rate of 8.28 including epilepsy and hysteria.

The first attempt ever made to provide special care for mental diseases in the field was during the Russo-Japanese war. A hospital set aside for this purpose by the Russian army at Harbin treated between fifteen hundred and two thousand men in 1905 and 1906. It has, however, never been claimed that all of the mental cases reached that place. Of 1,310 admissions the following conditions were represented[3]:—epileptic psychoses, 22.5 per cent; alcoholic forms, 19.5 per cent; dementia praecox, ten per cent; confused states, nine per cent; hysterical psychoses, 7.7 per cent; general paresis, 5.6 per cent; toxic conditions, 4.8 per cent; manic-depressive psychoses, four per cent; degenerative types, 3.5 per cent; traumatic psychoses, 3.2 per cent; and organic brain diseases, 2.9 per cent. It is interesting to note that Steida, who analyzed the statistics of the Russo-Japanese war in 1906, reached the conclusion that a psychic trauma alone was not a sufficient cause for the development of a neuro-

2. Weygandt, W.: Psychiatry in the Field. Medizinische Klinik. Abstract of, Journal of American Medical Association, November 7, 1914.
3. Richards, R. L.: Nervous and Mental Disorders in their Military Relations. Modern Treatment of Nervous and Mental Disease. White and Jelliffe, 1913.

sis. He attached an equal importance to prolonged physical exertion, deprivation, loss of sleep, hunger and thirst, etc. The most common disturbances following battles were found to be hysterical excitements and confused states.

As soon as the examination of men for military service was undertaken in this country in 1917 it became apparent that one of the most frequent causes of rejection was either mental disease or deficiency. The second report of the Provost Marshal General to the Secretary of War in 1919 [4] showed that of all rejections during the first year of mobilization, twenty-two per cent were due to physical defects which would interfere with duty (defects in bones, and joints, flat foot, hernia, etc.), fifteen per cent were on account of imperfections of the sense organs, thirteen per cent were for defects in the cardiovascular system and about twelve per cent were due to nervous or mental diseases. The inspection at camps following the physical examination of the first million men mobilized resulted in a rejection of nine per cent on account of nervous or mental diseases. Of all causes for rejections from the army up to February 1, 1919, according to Bailey,[5] mental and nervous diseases ranked fourth numerically. The "neuropsychiatric" causes were:—psychoses, eleven per cent; neuroses, fifteen per cent; epilepsy, nine per cent; organic nervous diseases or injuries, eighteen per cent; mental defects, thirty-two per cent, and constitutional psychopathic states, nine per cent; a total of 67,417 cases.

In the organization of our military forces in 1917, when this country entered the war, every effort was made to take advantage of the experience of others. Of the men returned to Canada from European battlefields on

4. Physical Examination of the First Million Draft Recruits. Bulletin No. 11, War Department, Surgeon General, 1919.
5. Bailey, Pearce: Reconstruction in Nervous and Mental Diseases. Medical Record, June 16, 1919.

account of disability, the nervous and mental cases contributed ten per cent of the total at that time, as was shown by Farrar.[6] These were distributed as follows: —neurotic reactions, fifty-eight per cent; mental disease and defect, sixteen per cent; head injuries, fourteen per cent; epilepsy and epileptoid conditions, eight per cent; and organic diseases of the central nervous system, four per cent. The first group mentioned consisted of neuroses in general and included the so-called cases of "shell shock," which brings us to one of the most interesting problems of the war. Dean A. Worcester, in a recent letter to the editor of *Science,* has raised the question as to whether this is a new disease. He calls attention to the following reference by Herodotus to the Battle of Marathon which occurred in the year 490 B.C.:—"The following prodigy occurred there: An Athenian, Epizelius, son of Capliagoras, while fighting in the medley, and behaving valiantly, was deprived of sight, though wounded in no part of his body, nor struck from a distance; and he continued to be blind from that time for the remainder of his life. I have heard that he used to give the following account of his loss. He thought that a large, heavy armed man stood before him, whose beard shaded the whole of his shield; that this specter passed by him, and killed the man that stood by his side. Such is the account I have been informed Epizelius used to give."

The nature and cause of shell shock has been the subject of much controversy. In 1875 Ericksen called attention to the effect of intense emotional shock on the nervous system. This he explained as "dependent on molecular changes in the cord itself." Oppenheim's monograph in 1899 was responsible for the general use of the term "traumatic neurosis." His conception of

6. Farrar, Clarence B.: The Problem of Mental Diseases in the Canadian Army. Mental Hygiene, July, 1917.

these conditions was not accepted by Charcot, who at the time insisted that they belonged to the domain of hysteria, and were due solely to psychic traumas. Oppenheim's [7] observation of cases during the first year of the war confirmed his previous views. He expressed the opinion in 1915 that "in absolutely healthy and mentally normal individuals, without any trace of hereditary taint, war trauma may cause psychoses or neuroses. The causal injury may be of an objective, psychic or mixed nature. Violent detonations illustrate the mixed type. Their effect upon the nerve of hearing is certainly physical, but the psychic effect—terror—is also an important element in the resulting condition. The enormous air pressure exerted by the close passage of these missiles is another influential factor. An element that tends to complicate etiology is the frequent long duration of the exciting causes (prolonged and continuous artillery fire, a series of injuries received at brief intervals, exhaustion from various causes, lack of sleep, insufficient nourishment, extreme heat or cold, etc.)." He admits that the symptoms indicate a combination of neurasthenic and hysterical complexes which may be explained on a psychogenic basis, but maintains that the war has demonstrated them to be of a different nature. An external shock causes "a functional disturbance of the delicate mechanism of the psychic centers shown in 1, faulty distribution of motor impulses, 2, hypo-innervation, 3, hyper-innervation, causing tremors, tonic and clonic spasms, etc., instead of single muscle actions." He admits that a hysterical temperament may be an important factor. Max Nonne [8] in 1915 called attention to

7. Oppenheim, H.: The War and the Traumatic Neuroses. Berlin klin. Woch., March 15, 1915. Abstract of War Work Committee of the National Committee for Mental Hygiene, 1918.

8. Nonne, Max: Shall War Injuries Still Be Diagnosed as Traumatic Neuroses? Med. klin., Berlin, August 1, 1915. Abstract of the Journal of the American Medical Association. Sept. 18, 1915.

the fact that conditions combining symptoms of hysteria, neurasthenia and hypochondriasis plus vasomotor changes may occur without any history of injury and should not be called traumatic neuroses for that reason. He felt that the sudden recoveries occurring so frequently strongly discredited any theories suggesting an anatomical basis. He expresed the opinion that the most common cause was the explosion of hand grenades and that the main factor involved was an emotional disturbance. Binswanger[9] was of the opinion that mechanical injuries to the nervous system were responsible for the clinical pictures in war hysterias. He found that in a few cases only was there a history of predisposition, and maintained that in pre-war conditions hysteria was the result of a combination of psychic traumas with physical disturbances. Exciting causes were "over-exertion, irregular and insufficient nutrition, loss of sleep and high mental tension." He concludes that "The theory of a psychic mechanism as the origin of these motor and sensory symptoms is not demonstrable." "War neurology has demonstrated that emotional shock, in conjunction with other injuries, may cause a symptom complex identical in all its details with the well known clinical picture of hysteria." Wolfsohn,[10] from a study of one hundred psychoneuroses and one hundred cases of physical injury received on the firing line, reached the conclusion that war neuroses are very rarely associated with external wounds. The vast majority of cases studied had a neuropathic or psychopathic taint, as shown in the family history in fourteen per cent of the total. A previous neuropathic constitution in the patient was found in

9. Binswanger, Otto: Hystero-somatic Symptoms in War Hysteria. Monat. für Psych. u. Neurol., Berlin, July and August, 1915. Abstract of War Work Committee of the National Committee for Mental Hygiene, 1918.
10. Wolfsohn, Julian M.: The Predisposing Factors of War Psychoneuroses. Lancet, London, Feb. 2, 1918.

seventy-two per cent. "A gradual psychic shock from long-continued fear, together with the sudden change from quiet, peaceful environment to the extraordinary stress and strain of trench fighting, is the chief predisposing cause of war psychoneurosis in soldiers with neuropathic predisposition. . . . Wounded soldiers do not suffer from war neuroses except in rare instances."

When the United States entered the war, Major, afterwards Colonel, Thomas W. Salmon [11] of the United States army made an exhaustive study of "The Care and Treatment of Mental Diseases and War Neuroses ("Shell Shock") in the British Army." At that time one-seventh of all discharges for disability from the British forces were due to mental and nervous disorders. As a matter of fact, they accounted for one-third of all discharges for actual diseases (eliminating wounds), England with the advantage of three years of experience had presumably completed her organization to its highest efficiency. One and one-tenth per cent of the cases in the military hospitals were suffering from mental diseases. The percentage represented by the expeditionary forces was 1.3. About six thousand "shell shock" cases were being admitted annually to the English hospitals. Col. Salmon estimated the admission rate at two per thousand in the troops at home and four per thousand in the expeditionary forces. The civilian rate during the same period was about one to one thousand of the population. The confusion which existed early in the war was shown by the fact that ten per cent of the cases sent to the Red Cross Military Hospital at Maghull as war neuroses turned out to be insane and twenty per cent of those admitted as mental cases at the Royal Victoria Hospital at Netley were subsequently

11. Salmon, Thomas W.: The Care and Treatment of Mental Diseases and War Neuroses (Shell Shock) in the British Army. War Work Committee of the National Committee for Mental Hygiene, 1917.

found to be suffering from neuroses. The first conclusion reached by Col. Salmon was that "contrary to popular belief and to some medical reports published early in the war, no new clinical types of mental disease have been seen in soldiers. There are no war psychoses." He found that of the cases being admitted to the hospitals for mental diseases about eighteen per cent were mental defectives, two per cent syphilitic psychoses, twenty per cent manic-depressive insanity, fourteen per cent dementia praecox, and seven per cent epilepsy. Statistics at that time were not available on purely psychopathic conditions, owing to the classification used.

In discussing the etiology of shell shock Col. Salmon divides those conditions into four groups—1. Cases in which death is caused by exploding shells or mines without external signs of injury; 2. Those in which severe neurological symptoms follow burial or concussion by explosions, with characteristic syndromes suggesting the operation of mechanical factors; 3. Cases in which there may or may not be damage to the central nervous system, but showing neuroses similar to those of civil life—"In this group of cases, in which there is possibility but no proof of damage to the central nervous system, the symptoms present which might be attributable to such damage are quite overshadowed by those characteristic of the neuroses;" and 4. Cases in which even the slightest damage to the central nervous system from the direct effect of explosions is exceedingly improbable. He also found that hundreds of men who have not been exposed to battle conditions at all develop symptoms almost identical with those described as "shell shock," many occurring in the non-expeditionary forces. The psychogenic factors involved are very well summarized by Col. Salmon in the following words:—"The psychological basis of the war neuroses (like that of the neuroses in civil life) is an elaboration, with endless variations, of one

central theme: escape from an intolerable situation in real life to one made tolerable by the neurosis. The conditions which may make intolerable the situation in which a soldier finds himself hardly need stating. Not only fear, which exists at some time in nearly all soldiers and in many is constantly present, but horror, revulsion against the ghastly duties which must be sometimes performed, intense longing for home, particularly in married men, emotional situations resulting from the interplay of personal conflicts and military conditions, all play their part in making an escape of some sort mandatory. Death provides a means which cannot be sought consciously. Flight or desertion is rendered impossible by ideals of duty, patriotism and honor, by the reactions acquired by training or imposed by discipline and by herd reactions. Malingering is a military crime and is not at the disposal of those governed by higher ethical conceptions. Nevertheless, the conflict between a simple and direct expression in flight of the instinct of self-preservation and such factors demands some sort of compromise. Wounds solve the problem most happily for many men and the mild exhilaration so often seen among the wounded has a sound psychological basis. Others with a sufficient adaptability find a means of adjustment. The neurosis provides a means of escape so convenient that the real source of wonder is not that it should play such an important part in military life but that so many men should find a satisfactory adjustment without its intervention. The constitutionally neurotic, having most readily at their disposal the mechanism of functional nervous diseases, employ it most frequently. They constitute, therefore, a large proportion of all cases but a very striking fact in the present war is the number of men of apparently normal make-up who develop war neuroses in the face of the unprecedentedly terrible conditions to which they are exposed."

The symptomatology has been briefly summarized by Col. Salmon in a way which cannot be improved upon:—"Most of them can be summed up in the statement that the soldier loses a function that either is necessary to continued military service or prevents his successful adaptation to war. The symptoms are found in widely separated fields. Disturbances of psychic functions include delirium, confusion, amnesia, hallucinations, terrifying battle dreams, anxiety states. The disturbances of involuntary functions include functional heart disorders, low blood pressure, vomiting and diarrhea, enuresis, retention or polyuria, dyspnoea, sweating. Disturbances of voluntary muscular functions include paralyses, tics, tremors, gait disturbances, contractures and convulsive movements. Special senses may be affected producing pains and anesthesias, mutism, deafness, hyperacusis, blindness and disorders of speech. It is highly significant that, in this unprecedented prevalence of functional nervous diseases among soldiers, no symptoms unfamiliar to those who see the neuroses in civil life present themselves."

An analysis of the 170,000 cases discharged for disability in England showed that twenty per cent were due to war neuroses. In his second Lettsomian lecture Mott [12] called attention to the interesting similarity between shell shock following concussion and burial, and the symptoms resulting from an acute carbon monoxide poisoning. This was, of course, a very possible complication in trench warfare. The headache, ringing in the ears, blurred and indistinct vision, hallucinations of sight, or actual blindness, giddiness, yawning, weariness, vomiting, cold sensations, palpitation, sense of oppression on the chest, etc., so common in gas poisoning are often followed, when consciousness is regained, by confusion

12. Mott, Frederick W.: Effects of High Explosives upon the Central Nervous System. Lancet, London, February 26, 1916.

and loss of memory, with retrograde amnesia. Tremors and loss of speech are also frequently noted. Mott reached the conclusion that shell shock, in some cases at least, was due to gas poisoning. In his third Lettsomian lecture he discusses the symptomatology of shell shock. In some instances there was a partial loss of consciousness, characterized by dazed states somewhat similar to those of epilepsy. Under speech defects he includes mutism, aphonia, stammering, stuttering and verbal repetition. Headache in the occipital region was found to be a very common symptom. Vasomotor conditions were palpitation, breathlessness, pericardial pain, rapid weak pulse, low blood pressure, cold extremities, low temperature, etc. Anesthesia and hyperesthesia or loss of pain sense also occurred, and deafness was often observed. Smoky vision, photophobia and functional blindness were frequent eye symptoms. Tremors, tics, choreiform movements, functional paralysis and gait disturbances are also mentioned by Mott. In the Chadwick lecture he later called attention to the presence of insomnia and terrifying dreams in practically all cases of true shell shock.

In 1917 Mott [13] reported the examination of the brains from two cases of pure shell shock. They showed a congestion of the meninges, scattered subpial hemorrhages, and congested vessels in the internal capsule, pons and medulla. In one case there was an extravasation of blood into the substance of the lower surface of the orbital lobe. He spoke also of a general chromatolysis in the ganglion cells. Eder [14] in 1917 advanced the theory that the symptoms of neuroses are the result of mental conflicts and that the mechanisms involved are those

13. Mott, Frederick W.: The Brain in Shell Shock. Brit. Med. Journal, November 10, 1917.
14. Eder, Montague D.: War Shock: the Psychoneuroses in War. Psychology and Treatment. 1917.

attributed by Freud to hysteria. As a result of an analysis of one hundred cases he reached the conclusion that mechanical shock, gas poisoning and other physical traumas were not factors in the production of these conditions. His cases occurred in persons free from hereditary or personal psychoneurotic predisposition. Chavigny in a discussion of the mental diseases in the French army asserted that psychoses and neuroses were practically unknown until trench warfare began and the use of heavy artillery became common. From this moment psychiatric units became necessities. Ballet and de Fursac[15] were very firmly of the opinion that shell shock was due to purely emotional reactions in predisposed individuals. "If disturbances from explosion and from emotional shock, existing with or without traumatism, produce identical results, it is evident that they have a common factor and this common factor can be only the emotion itself. Disturbance from explosion without external injury presupposes an emotional state, and it is from this state that it derives its causal efficacy; whatever the etiological complex found as the cause of a condition of shock, whether the explosion of a shell, bomb or mine, the sight of the dead, burial in a trench, wound from an explosion or a missile, there is only one factor of importance, the emotional factor, which is essentially responsible for all the neuropsychic disorders that together make up the shock syndrome."

In 1915 Birnbaum summarized seventy-two articles written on war psychoneuroses in the German army up to the middle of March of that year. On analyzing this study Hoch reached the conclusion that the rate of psychoses was only about two in ten thousand, which would appear to be entirely too low. Birnbaum compared the

15. Ballet, Gilbert, and de Fursac, Rogues J.: The Concussion Psychoses: Psychoses from Nervous "Commotion" or Emotional Shock. Paris Méd., January 1, 1916. Abstract of the War Work Committee of the National Committee for Mental Hygiene. 1918.

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statistics of various observers showing the frequency of psychoses during the first year of the war as follows: —"Psychopathic constitution, hysteria, traumatic neuroses, etc., Bonhöffer, fifty-four per cent; Meyer, 37.5 per cent; and Hahn forty-three per cent. Alcoholism, acute and chronic, Bonhöffer, ten per cent; Meyer, 21.5 per cent; and Hahn, twenty-one per cent. Dementia praecox, Bonhöffer, seven per cent; Meyer, 7.5 per cent; and Hahn, thirteen per cent. Epilepsy, Bonhöffer, fourteen per cent; Meyer, 11.5 per cent; and Hahn, eight per cent. Manic-depressive insanity, Bonhöffer, three per cent; Meyer, four per cent; and Hahn, two per cent. General paralysis, Bonhöffer, six per cent; Meyer, 3.5 per cent; and Hahn, three per cent." In discussing these findings Hoch says:—"It is clear from this table that psychopathic constitutions, various psychogenic reactions, hysterical and anxiety states, also exhaustive conditions—all of which are included in the first group—are strikingly frequent; whereas the more serious constitutional disorders, such as manic-depressive insanity, dementia praecox and epilepsy are much rarer." Both Birnbaum and Bonhöffer expressed surprise at the infrequency of manic-depressive conditions. Wollenberg found that the individuals who broke down during mobilization, and who had the least resistance, developed manic-depressive insanity, paranoid schizophrenias, episodic psychopathic excitements and occasional clouded states. The cases appearing at the front, on the other hand, were largely hysterias, anxiety states and exhaustive conditions. Birnbaum described psychoses similar to those reported by Awtokratow in the Russo-Japanese war and characterized by great weariness with a tendency to weeping, disturbed sleep and hallucinations related directly to unpleasant war experiences to which the patients had been subjected. He attributed these to exhaustion.

Lust [16] quotes Mörchen as finding only five cases of war neuroses in forty thousand prisoners at Darmstadt and found very few cases in an additional twenty thousand which he investigated himself.

Westphal in 1915 expressed the opinion that there were neither war psychoses nor neuroses and that these conditions did not differ in any way from those described in times of peace. MacCurdy,[17] who made an elaborate study of war neuroses in 1917, described them as being either anxiety conditions or simple conversion hysterias. He looked upon fatigue as being a very important factor in the development of a neurosis, with either a physical accident or a mental shock as the precipitating cause. He defines war neuroses as "Those functional nervous conditions arising in soldiers which are immediately determined by modern warfare and have a symptomatology whose content is directly related to war." MacCurdy found that concussion could be considered as a possible factor in less than one-fourth of the cases he observed. He refers to minute cerebral and retinal hemorrhages with blood in the cerebrospinal fluid as an evidence that concussion is a cause in some cases. Curschmann, Meyers, Buzzard, Farrar and various others have noticed that the gross hysterical manifestations were extremely rare in officers. After an extended discussion of the etiology of the war neuroses, Farrar in 1918 expressed as one of his conclusions the opinion that "The drift of opinion is unmistakable towards the psychogenic basis of war neuroses of all types, including shell shock. Even in the initial unconsciousness or twilight state of some duration there is evidence that the psychogenic element may

16. Lust, F.: War Neuroses and Prisoners. München Med. Woch., Dec. 26, 1916. Abstract of the Journal of the American Medical Association. Feb. 24, 1917.
17. MacCurdy, John T.: War Neuroses. Psychiatric Bulletin, July, 1917.

have as great if not a greater rôle than the item of mechanical shock, although this is also important."

Hartung[18] in 1918 reported a study of 780 cases of war neuroses treated by him at Thal. About ninety-eight per cent were cured by psychic and mechanical treatments. One hundred and sixty-two cases showed hysterical paralysis, the lower limbs being affected twice as often as the upper. Tremors of the head or upper limbs were present in twenty-eight per cent, hysterical convulsions in eight per cent, speech disturbances in five per cent, hearing disorders in one per cent, cardiac and respiratory symptoms in 1.5 per cent, neuroses of the digestive system in 1.5 per cent, and bladder disturbances in 1.5 per cent of the cases. Neurasthenia "in the strictest sense of the word" was present in twenty per cent. Hurst[19] and others have spoken of endocrine disturbances in war neuroses. He includes hyperadrenalism and hyperthyroidism due to an over-stimulation of the sympathetic nervous system, resulting from such emotions as anger and fear. Rapid pulse, enlargement of the heart, and high blood pressure were common symptoms. The patients in some cases showed conditions strongly suggesting Graves' disease. In addition to the circulatory disturbances there was paroxysmal sweating, the eyes were slightly prominent, sometimes with von Graefe's sign, and pilomotor reflexes were present.

An important contribution to the discussion as to the etiology of war neuroses was the statement made by Major General Ireland[20] to the Senate Committee on Military Affairs, that of the twenty-five hundred cases

18. Hartung, M. U.: German Experiences of War Neuroses. Zeitschrift für d. ges. Neur. u. Psych., 1918. Abstract of the Journal of Nervous and Mental Diseases. Oct., 1919.
19. Hurst, A. F.: Observations of the Etiology and Treatment of War Neuroses. Brit. Med. Journal, September 29, 1918. Abstract of the Journal of Nervous and Mental Diseases. Oct., 1919.
20. Ireland, Merritte W.: Care of the Army's Mental Defectives. Journal of Nervous and Mental Diseases, December, 1920.

of shell shock awaiting transportation to the United States, twenty-one hundred recovered within a day or two after the armistice was declared. He gave the incidence of mental and nervous diseases in the forces in camps in this country as 2.5 per thousand and ten per thousand overseas. Another interesting phase of shell shock was the surprising results which various German observers obtained by the so-called "Kaufmann" treatment, the sudden application of a strong faradic current. One of the most significant contributions to the psychiatric history of the war as far as this country is concerned is the statement made by Col. Salmon [21] that in the latter part of December, 1920, of the beneficiaries of the War Risk Insurance thirty-two per cent were suffering from general diseases; forty-one per cent from tuberculosis; and twenty-seven per cent from various neuropsychiatric disorders. "The vague idea that all these men are suffering from "shell shock" or other mysterious maladies developed under the stress of modern warfare was replaced by the realization that more than two-thirds of all neuropsychiatric patients have one or another type of insanity." Of these cases sixty-six per cent had well developed psychoses; nineteen per cent psychoneuroses; five per cent epilepsy; two per cent mental deficiency; and eight per cent organic nervous diseases or injuries. On December 16, 1920, there were five thousand five hundred cases receiving hospital treatment.

21. Salmon, Thomas W.: The Insane Veteran and a Nation's Honor. The American Legion Weekly, January 28, 1921.

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CHAPTER XII

ENDOCRINOLOGY AND PSYCHIATRY

The important influence exercised by the glandular structures on the human organism has long been recognized. Perhaps the earliest evidence of this is the study of alterations due to the removal of the sexual glands. Eunuchoidism was described by Larrey as early as 1812 in his well-known account of the Egyptian campaign. In 1845 Bouchardat advanced the theory that pancreatic lesions were responsible for the development of diabetic disorders. Thomas Addison in 1855 showed the existence of a very definite disease process caused by pathological conditions in the adrenals. Mongolianism was recognized as a distinct entity by Langdon-Down in 1866. Gigantism was studied very thoroughly by von Langer in 1872. The existence of the parathyroids was unknown until they were described by Sandström in 1880. Weiss in 1881 showed that the extirpation of the thyroid sometimes caused tetany. After myxedema had been studied clinically by Charcot and others the fact that it was clearly related to disturbances of the functions of the thyroid gland was demonstrated by Kocher and Reverdin in 1882. Adipositas Dolorosa was described by Dercum as a form of dysthyroidia in the same year. Acromegaly was originally defined by Pierre Marie in 1886 and its relation to the hypophysis was pointed out by him. In 1886 Möbius called attention to the part played by the ductless glands in Basedow's disease, Grawitz in 1888 showed the significance of thymic hyperplasia and Paltauf in the following year described the "lymphato-

chlorotic constitution." The pancreatic origin of diabetes was elaborately outlined by von Mering and Minkowski in 1889. The influence exerted by glandular secretions on general metabolism was demonstrated by Brown-Sequard in the same year. Lemoine and Launois in 1891 reported the existence of sclerosis of the blood and lymph vessels in the pancreas and Laguerse in 1893 found that the Islands of Langerhans were often involved in diabetes. Thyroigenic obesity was reported by von Hertoghe in 1896. The isolation and chemical definition of adrenalin by Takamine in 1901 was a decided step in advance. Fröhlich in 1901 suggested that obesity, infantilism of the genitalia and myxedematous alterations of the skin pointed to tumors of the hypophysis. In the same year Neumann thoroughly reviewed the subject of growths in the epiphysis, submitting a study of twenty-two cases. The various types of dwarfism were first described by von Hansemann in 1902. Thyroplasia and myxedema were exhaustively studied by Pineles in 1910 and 1912. The literature on the subject of the ductless or so-called endocrine glands has grown enormously during the last two or three decades and is shown in full by Falta and Meyers.[1]

The endocrine syndromes as now understood have been briefly summarized by Blumgarten[2] in a very graphic form as follows:—

THYROID STIGMATA

Symptoms of So-called Hyperactivity

Exophthalmus.	Scanty and frequent menstruation.
Wide palpebral slits.	Emaciation.
Tachycardia.	Periodic loss of flesh and strength.
Nervousness.	Mild hyperthermia.
Tremors.	Increased basal metabolism.
Stelwag's sign.	Lymphocytosis.

1. Falta, Wilhelm: The Ductless Glandular Diseases. Trans. by Milton K. Meyers. 1916.
2. Blumgarten, A. S.: The Rôle of the Endocrine System in Internal Medicine. New York Medical Journal, February 5, 1921.

Symptoms of So-called Hyperactivity — Continued

Von Graefe's sign.
Anginoid attacks.
Hyperidrosis.
Deformities of the nails.
Dryness of the mouth.
Excessive salivation.
Vomiting attacks.
Diarrhea.
Irregular breathing.
Eosinophilia.
Increased coagulation time.
Increased emotional irritability.
Ideas of reference and persecution.
Manic symptoms.
Bluish-white teeth.
High hair line.
Hourglass contraction of the stomach.

Symptoms of So-called Hyposecretion

Precocious graying of the hair.
Drowsiness.
Anorexia.
Small stature.
Puffiness of the face.
Sallow complexion.
Scanty hair.
Deepset eyeballs.
Dull and listless cornea.
Hard, brittle nails.
Scanty eyebrows.
Cold, bluish, moist hands.
Tending to chilblains.
Irregularly developed teeth which decay easily.
Defective development.
Dry, thick, scaly skin.
Acrocyanosis.
Localized transitory edema.
Urticaria.

Parathyroid Stigmata

Intermittent cramps.
Twitching of the hands.
Tetany with associated symptoms.

Pituitary Stigmata

Greatly thickened nose.
Prominence of superciliary ridges.
Tendency to increased tuftings of terminal phalanges.
Coarse, heavy, overhanging eyebrows.
Protruding thick lips.
Prominent hypertrophied lower jaw.
Increased sugar tolerance.
Increased interdental spaces.
Enlarged sella tursica.
Hypertrophied nails.
Hypertrophied, thickened skin.
Short, square hands.
High carbohydrate tolerance.
Amenorrhea.
Visceroptosis.

So-called Deficiency Symptoms

Adiposity.
Fat pads around the malleoli.
Increased development of the mammary glands.
Deposit of fat around the buttocks and the neck.
Alabasterlike skin.
Irregular menstruation.
Subnormal temperature.
Wide intercostal angle.
Fatigability.
Infantile uterus.
Slow pulse.
Sluggish mentality.
Mononucleosis.
Eosinophilia.
Leucocytosis.
Short stature.
Childlike voice.
Bitemporal headache.
Supraorbital headache.
Sterility.

Adrenal Stigmata

Aggressive type of individual.
Increased growth of hair on body.
Masculine type of female and vice versa.
Prominent canine teeth.

So-called Deficiency Symptoms

Asthenia.
Low blood pressure.
Muscular pains.
Fatigability.
Pigmentation.
Sergent's white line.

Thymus Stigmata

Very long stature.
High palatal arch.
Infantile epiglottis.
Lymphocytosis.
General glandular enlargement.
Abnormally long thorax.
Visceroptosis.
Eosinophilia.

Gonadal Stigmata

Hermaphroditism.
Pale, anemic skin.
Flushes in the female.
Scanty growth of lanugolike hair.
Sparse eyebrows.
Dull, lethargic mentality.
Characteristic pyramidal pubic hair in males and flat in females.

Symptoms of So-called Gonadal Hyperactivity

Precocious sexual activity.
Jolly, gay disposition.
Marked fecundity.
Menorrhagia or metrorhagia.

Symptoms of So-called Hyposecretion

Infantilism.
Small, atrophic testes.
Late menstruation.
Menorrhagia.
Dysmenorrhea.
Infantile uterus.
Nervous constipation.
Deficient lateral incisors.
Sterility.
Absent lateral incisors.

Pineal Stigmata

(occur only in children)

Precocious sexual and mental development.

It will be noted that he associates manic symptoms, increased emotional irritability, ideas of reference and persecution with thyroid hyperactivity and speaks of a sluggish mentality in pituitary deficiency and gonadal stigmata. Blumgarten's summary of these conditions is very interesting: "The study of the various stigmata shows that many of these are present regularly in certain types of individuals. Consequently we may group individuals from an endocrine viewpoint into various types according to the prominent endocrine stigmata which they show. For example, the nervous, thin individual with tachycardia, rather prominent eyeballs, fine, delicate hair, suffering occasionally from gastric symptoms, sug-

gests the thyroid type, as does also the clean-cut, alert individual, and the young woman suffering with amenorrhea and a tendency to obesity and lethargic mentality. On the other hand, the aggressive, energetic individual, with the history of an ancestry subject to vascular disease, with high blood pressure, with abundant, unusual distribution of hair and a tendency to pigmentation, suggests the adrenal type. And so does the tired, asthenic individual with low blood pressure and Sergent's white line, who may have had influenza or diphtheria and even may be suffering from tuberculosis. On the other hand, however, the heavily built individual with broad, large frame, wide intercostal angle, broad nose, prominent supra-orbital ridges, prominent lips, large, square fingers, suggests the pituitary type. These individuals are very fond of meats, are heavy eaters, and are constantly subject to diseases of a gouty nature, may have a history of syphilis, are often musical and, as a rule, are usually successful in their particular community."

According to Kaplan [3] "such states as lack of courage, melancholy, suicidal tendencies, dementia praecox, precocious adolescence, and immature senility, sadism and masochism; all of these are possible manifestations in a gonadotrop individual." Garretson [4] is of the opinion that the "large group of patients generally misunderstood and frequently classed in civil life as neurasthenics, psychasthenics, hysterics, cyclothymics, and hypochondriacs, is now capable of an intelligent analysis and rational therapy, if one will concede that these are the victims of an endocrinic asthenia."

As an evidence of the influence of the endocrine glands on psychical functions, Falta [5] refers to "the alteration

3. Kaplan, D. M.: Internal Secretions. New York Medical Journal, February 5, 1921.
4. Garretson, William V. P.: The Dominance of the Endocrines. New York Medical Journal, May 17, 1921.
5. Falta, Wilhelm: The Ductless Glandular Diseases. Trans. by Milton K. Meyers. 1916.

in character that is almost always associated with the development of Basedow's disease; to the psychical irritability, the inclination to irascibility, the manic-euphoristic attitude of patients with Basedow's disease; to the apathy and lack of interest of the myxedematous; to the characteristic quiet mental attitude in hypophysial dystrophy, and the feeling of mental want of strength in those suffering with Addison's disease; to the depressive attitude of the tetany patient, and finally to the profound influence that the ripening of the sexual glands at the time of puberty or the loss of function of the sexual glands in castrates exercises on the psyche." Going into this subject more in detail Falta gives the following mental symptoms as associated with Basedow's disease: abnormal irritability, "immotivated" gaiety, hasty speech, rapid flow of thoughts, a suggestion of flight of ideas, changeable moods and terrifying dreams. He also finds an alteration in the personality as shown by suspiciousness, capriciousness, irritability and either euphoric or depressed tendencies. Möbius compares this with a condition of mild intoxication associated with maniacal periods alternating with depression. Occasional attacks of delirium with confusion and hallucinations terminating in coma have been described. Sattler, who has analyzed 150 of these cases as reported in current literature, classifies over seventy as cases of manic-depressive insanity. Boinet, Parhan and others have shown that depression with suicidal inclinations may follow the ingestion of large amounts of thyroidin. Conditions of excitement have also been reported in thyroidism, and, according to Falta, are not uncommon. Brunet has expressed the opinion that in such cases Basedow's disease acts only as a precipitating factor in an individual predisposed to a psychosis.

The English Myxedema Commission found the apathy characteristic of that disease present in all but three

of 109 cases. This condition develops early and may manifest itself in the form of a mild mental dulness. Intellectual activities are often markedly diminished and there is a slow, monotonous form of speech. Deterioration may be well developed and memory seriously impaired. The commission in its investigations found illusions in eighteen cases, hallucinations in sixteen and psychoses in sixteen. These took the form usually of a depression with occasional excitements. The symptoms, in some cases at least, disappeared after thyroid treatment was instituted.

The psychic changes in cretinism have been made the subject of considerable study. The usual mental state is, of course, one of feeblemindedness. Perception has been shown to be disturbed, memory is impaired and there is a marked emotional deterioration and instability.

In the parathyroid form of tetany von Frankl-Hochwart found depressions and confused states with hallucinations. Depressions were reported by him in fourteen of thirty-seven cases examined. Excitements were also noted in some instances. Falta refers to "a characteristic apathy, a want of initiative, and a slowing of speech" in acromegaly. In rare cases he has also noted mental exaltation. Oppenheim (1914) has called attention to cases of acromegaly presenting the picture of general paresis but due to an alteration of glandular functions and not syphilitic in origin.

Falta includes the following in his description of the symptomatology of Addison's disease: "Almost always the disease manifests itself in ready fatigability, disinclination for work, and apathy; to these symptoms are sometimes added headaches, poor sleep, sometimes obstinate insomnia, psychical ill humor and depression, often too, abnormal irritability; further, diminution in memory, noises in the ears, vertigo and commonly fainting attacks, singultus, and rheumatoid pains in the back

and in the extremities, sometimes, also epileptiform convulsions. Extremely stormy manifestations on the part of the nervous system may, especially in the later stages, make their appearance—violent delirium, acute confusion, convulsions, deep stupor, and coma."

Raeder [6] has made an analysis of glandular involvements found in the study of one hundred cases of feeblemindedness at autopsy. He classifies these as 1, extreme changes—in which three or four glands were involved and where there were marked anomalies of growth, underdevelopment, disproportion of the body parts, etc.; 2, marked changes—in which at least two glands were involved and where there were distinct changes in growth and anomalous development; 3, moderate changes—in which one or two glands were involved; and 4, cases where no glandular involvement was found. He noted extreme changes in ten per cent of the series, marked changes in eleven per cent, moderate changes in fifty-three per cent and none at all in twenty-six per cent. Sixty per cent of these individuals showed deviation from the normal in size, fifty-one per cent were undersized and nine per cent were above the average height, while thirty-eight per cent were normal. The pituitary was found to be involved in forty per cent of the one hundred cases, the thyroid in nineteen per cent, the suprarenal in twenty-seven per cent, the sex glands in thirty-eight per cent, the thymus in twelve per cent and other glands in six per cent. He frequently found several involved: "Pituitary with gonads in nine cases, was the most common dual adenosis, though there were combinations of sex and thyroid in four instances, sex and suprarenal in four cases, and in three cases the thyroids, pituitary and gonads were affected in triple involvement. Furthermore, there were six cases in which the gonads were

6. Raeder, Oscar J.: Endocrine Imbalance in the Feebleminded. Journal of the American Medical Association, August 21, 1920.

combined with three other glands; two included the gonads, thyroid, pituitary and suprarenal; two, gonads, thyroid, pituitary and thymus." Further investigation only can accurately determine the exact relation which exists between disturbance of these glands and the presence of mental deficiency.

Attention was called some time since to the fact that the injection of adrenalin leads to an increase in blood pressure. This has been discussed by Falta, Newburgh, Nobel and others. Neubürger [7] made a study of thirty-nine cases, seven of which were normal, the others including alcoholism, neurasthenia, manic-depressive, etc., but not dementia praecox. A fairly well marked rise of blood pressure followed adrenalin injection very quickly, reaching its maximum in from six to twelve minutes. He found the reaction diminished or absent in eighty per cent of the sixty-three cases of dementia praecox which he examined, but does not advance the claim that this can be utilized for diagnostic purposes. Walter and Krumbach [8] found an increased pressure in sixty per cent of normal control cases and obtained similar reactions in dementia praecox. Schmidt, on the other hand, confirmed the findings of Neubürger. Emerson [9] found status lymphaticus in over twenty-nine per cent of his cases of dementia praecox and Davis [10] found the same condition in twenty-four per cent of war neuroses in a series of over one hundred cases. These findings, however, lack confirmation by other observers. Straus [11] includes as

7. Neubürger: Arch. für Psychiatrie. Vol. 55. Abstract of, Psychiatric Bulletin, January, 1916.
8. Walter and Krumbach: Zeitschrift f. d. g. Neurologie und Psychiatrie. Vol. 28. Abstract of, Psychiatric Bulletin, January, 1916.
9. Emerson, H.: A Note on the Incidence of Status Lymphaticus in Dementia Praecox. Arch. Int. Medicine, December, 1914.
10. Davis, Thomas K.: Status Lymphaticus; Its Occurrence and Significance in the War Neuroses. Arch. of Neurology and Psychiatry, October, 1919.
11. Straus, S. G.: Thyroidal Constipation. New York Medical Journal, February 14, 1920.

mental symptoms in thyroidal disbalance: sluggish mental reactions alternating with sparkling wit, irritability, general moodiness and depression, difficulty in thought with inability to concentrate, forgetfulness, fatigability and somnolence.

Turro [12] has shown that all of the physical evidences of fright—pallor, dilatation of the pupils, rapid pulse, cutis anserinus, perspiration, etc., can be produced experimentally by the injection of epinephrin in certain cases. Knauer and Billigheimer [13] have called attention to the striking similarity between the functional changes to be found in disturbances of the vegetative (sympathetic) nervous system and certain manifestations associated with fear neuroses. They attribute these disturbances to congenital inferiority, toxic sources, emotional shock or fatigue.

A uniform defective development of the physical and mental personality of the individual has been designated by Lasègue as infantilismus. As described by Di Gaspero and de Sanctis the mental status of these cases belongs to the domain of feeblemindedness and in some instances to imbecility. According to Kraepelin [14] the attention is easily attracted and as easily distracted. These individuals are inquisitive and flighty. Apprehension is defective. What they hear and see can only be related in a fragmentary and unreliable manner. They often learn readily and forget as quickly. Pende described the mental development as only one-third of the normal. Memory gaps are supplied by exaggeration and fabrication, as influenced by emotion or suggestion. Di

12. Turro, R.: Emotions and Endocrine Functions. Abstract of Journal of the American Medical Association, December 13, 1919.
13. Knauer, A., and Billigheimer, E.: Concerning Organic and Functional Disturbances of the Vegetative Nervous System with Special Reference to the Fear Neuroses. Zeitschrift f. d. g. Neurologie und Psychiatrie, 1919, Vol. 50. Abstract of the Journal of Nervous and Mental Diseases, August, 1920.
14. Kraepelin, E.: Psychiatrie. Vol. 4, 1915.

Gaspero found falsification of memory in twenty per cent of his cases. Imagination is very active with a tendency to dreamlike unrealities, wonderful tales of adventure, etc. Mental processes are inadequate, vague and uncertain. The real and the unreal are not clearly differentiated. Explanations and descriptions are inaccurate and indefinite. Standards of value, size or time are vague. The store of ideas is impoverished and associations are poor. Calculations are slow and faulty. These persons are illogical, impractical and credulous. They are swayed by prejudices, catchwords and hasty judgment. Their range of thought is narrow and their viewpoint of life childish. The emotional and volitional content is immature. They are cheerful but lack earnestness, and are often ambitious and boastful. At other times they are likely to be despondent, timid, anxious, fearful and lacking in self-confidence. The mood is exceedingly variable. They are not industrious, cannot apply themselves constantly to any line of work, and tire easily. Their conduct is very uncertain and unreliable. Some have criminal tendencies. Occasionally hysterical symptoms appear. Evidences of an absence of physical development manifest themselves in all varieties of immaturity. These defects, according to Falta, are shown especially in the genitalia and the lymphatic apparatus, with a delay in the closure of the epiphysis and the retention of a childish physique generally. The skeletal framework shows a failure of development, the lower length of the body exceeds the upper slightly, if at all, the head is relatively large, the bones slender and the pelvis infantile in type. The sexual organs and the "vita sexualis" are those of a child. The blood shows a large lymphocyte count and a definite status lymphaticus is sometimes found to be present. The hairy development of the pubis and axillary surface is slight. The internal organs are normal. True

infantilism, according to Falta, is not due to a glandular disturbance. He also maintains that the mind, while that of a child, is normal otherwise and shows no defects. Juvenile myxedema, hypophysial dystrophy and eunuchoidism, Falta would not include with the infantilismus group. Infantilism has been ascribed to syphilis, tuberculosis, alcoholism, etc., of the parents. Brissaud in 1907 advanced the theory that it was a hypothyroid symptom. His views have been supported by various other writers, although not shared by either Falta or Kraepelin. The latter has also described mental conditions more or less suggesting feeblemindedness and associated with lesions of the hypophysis, the pineal gland, the adrenals, the sexual glands and the thymus.

Lesions in the anterior lobe of the pituitary result in gigantism or acromegaly, with a childish mentality most marked in the emotional sphere. These persons are usually indifferent, good-natured and boastful, and at the same time clumsy and inactive. A diminished activity of the glandular portion of the hypophysis means dwarfism. Lesions of the posterior or "nervous" lobe may cause "dystrophia adiposo genitalis," the "adipositas dolorosa" of Dercum. The mental status in this condition Kraepelin compares to that described in acromegaly—apathy and indifference, with occasional restless or excited types. The intellectual capacity may be normal, mediocre or somewhat deficient.

The pineal gland is spoken of as having a very definite relation to sexual development. Extirpation is said to lead to rapid development of the body, the accumulation of fat and early sexual development,—a condition described by Pellizzi as "makro-genitosomia praecoce." Schüller in fifty-one cases with pineal involvements found ten occurring during the first decade of life. Death usually takes place within a few months or years. Similar conditions result from hyperactivity of the adrenal

cortex,—rapid development of the body, and particularly of the sexual organs, obesity and overgrowth of the hair and beard. Wiesel described as a "suprarenal genital symptom complex" cases of pseudo-hermaphrodism in women.

Lesions of the adrenal, as studies of Addison's disease show, have, according to Kraepelin,[15] the following symptoms: weakness of memory, apathy, dulness, inactivity and inhibition of growth. He also calls attention to the fact that in anencephaly, hemicephaly and microcephaly defective development of the adrenals is very common. "Eunuchoidismus" and "viriginität" with mental symptoms due to defective development of the sex glands are also described. The physical manifestations include defective secondary sexual characteristics, in men in the growth of the beard and change of the voice, and in women in the development of the mammary glands, the fat deposits and the curve of the hips. There is a failure of sexual development and absence of menses, as well as defective physical growth. Eunuchoidismus may manifest itself in a giantism somewhat suggesting that resulting from lesions of the pituitary or in a dwarflike physical development. The former variety is characterized by an unusual height with long arms and legs. The forehead is receding, with a low hair line. The external genitals are very small and there is little pubic or axillary hair. Ossification is delayed. In the second form (dwarfs) the body, arms and legs are short and thick. The head is large and the neck short. The genitals are small and the penis is short and button-shaped. Hair formation is slight. The mental condition in either case is characterized by an intellectual defect with timidity, emotional instability, helplessness and weakness of will, sometimes with an active imagination. Kraepelin also describes endocrine conditions re-

15. Kraepelin, E.: Psychiatrie. Vol. 4, 1915.

sulting from thymic lesions—thymic idiocy, status thymolymphaticus—and mentions the pancreatic infantilismus referred to by Brownell, Basedow's disease, acromegaly, pluriglandular insufficiency and other conditions already mentioned. Kraepelin has encountered only seven "dysadenoid" forms in a study of 244 cases. Bourneville has reported 104 cases of persistent thymus.

One of the most interesting contributions to the literature of endocrinology is Mott's [16] suggestion that dementia praecox is due to a combination of degenerative changes in the cortical neurones and the generative organs. As a result of the study of twenty-two cases of dementia praecox he found that more marked pathological changes were found in the testes than were observed in cases of manic-depressive insanity, alcoholic psychoses, epilepsy or paranoia. The characteristic findings consisted in regressive changes in the seminal tubules and abnormal staining reactions in the spermatozoa. He found more evidences of virility in a senile individual of eighty than in any of his cases of dementia praecox. His theory as to the pathogenesis of the disease is based on the fact that the changes in the neurones are of the same character—a degeneration of the nuclear elements. These findings have not at this time been confirmed by other observers.

Timme [17] has described a psychic makeup due to subinvolution of the thymus. "The mental picture presented by these subinvoluted thymic states is also of great importance, for analogous to their structural lack of differentiation is their psychic makeup. They remain childlike in their character, so that they are self-centered; simple in their mental processes and imitative; looking for protection and care, and more or less unfitted for

16. Mott, Frederick W.: British Medical Journal, November, 1919.
17. Timme, Walter: Clinical Endocrinology. Neurological Bulletin, January 1921.

the active struggles of life. They are obstinate and negativistic; if, however, an efficient compensation takes place, then, although the mental development may have been delayed, it nevertheless seems finally to reach complete maturity; and these individuals are among the brightest and most intelligent of their community." In cases of precocious involution of the thymus he finds the mental condition to be of chief interest. "They are precocious, with much initiative, are easily aroused to anger and are resentful. They have cruel instincts and show little inhibition. Although they seem far advanced for their years while still young, yet they never seem thoroughly to mature, and become blocked in early adolescence. They seem to retain their impulsive, unreasoning characteristics, brook no restraint and remain constantly a prey to their easily aroused anger." Of thyroid insufficiency he says: "Mentally, the patient is dull, sluggish and with little initiative. He moves slowly and thinks slowly, is extremely forgetful and his lethargy is occasionally disturbed by outbursts of anger due probably to his maladjustment to the more quickly moving world about him." In his summary of the hyperthyroid makeup, Timme says: "Both mind and body are everlastingly busy. And not only with present problems, but anticipatory of tomorrow's as well. The patient shows no rest or relaxation. His mind, filled with echoes of the day's troubles, prevents his falling to sleep until long after he retires, and he is again awake and immediately on the "qui vive" as soon as daylight comes." Statistics on endocrine conditions are unfortunately not available as yet.

CHAPTER XIII

THE MODERN PROGRESS OF PSYCHIATRY

The remarkable accomplishments of medical science during the last few decades may be looked upon as a fairly accurate index of modern progress in general. Nor have these advances been confined to any limited field. Standards of education have changed with almost startling rapidity. The most extended course of instruction open to medical students fifty or sixty years ago covered a period of two years. Qualifications for entrance consisted in little more than a demonstration of the candidate's ability to pay the required matriculation fee. The three year course, only recently established and generally recognized, was lengthened to four years during the latter part of the nineteenth century. The number of medical colleges has been materially reduced and the size of the graduating classes has decreased fifty per cent or more during the last twenty-five years as a result of the higher standards. Several of our medical schools admit college graduates only and two years of college work is now a minimum entrance requirement in institutions of the highest type. Very few men feel properly equipped for taking up the practice of medicine today until they have had an experience of at least a year in a general hospital. The profession is tending more and more towards specialization and the old-fashioned general practitioner is now at a considerable disadvantage. Ophthalmology has become almost an exact science. Gynecologists, obstetricians, pediatrists, orthopedists, laryngologists, neurologists and internists are looked upon as almost indispensable in a community of any

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size. All of these specialists are more or less dependent on the cooperation of a pathologist, who can do nothing without a well equipped laboratory at his disposal. Surgery has long been regarded as a specialty which required an extended training as well as years of experience.

The progress of modern medical science has been almost bewildering. It has been a comparatively short time since the principles of antisepsis and asepsis were established by Lister. The plasmodium of malaria was described in 1880. It was not until 1882 that the tubercle bacillus was discovered by Koch. Diphtheria was rendered an almost harmless disease by the discovery of a specific antitoxin. The uncertainties relating to the diagnosis of typhoid fever were entirely removed when the Widal reaction came into general use. The Roentgen ray has revolutionized surgery. The diagnostic and therapeutic use of tuberculin has been of inestimable value to internal medicine. Schaudinn's discovery of the treponema pallidum in 1905 cleared up one of the greatest scientific mysteries of modern times. The introduction of salvarsan has added a new and important chapter to our history of therapeutics. The Wassermann reaction represents probably the most important diagnostic discovery of the century. The recent studies of the so-called ductless glands have opened up new and important fields of research which promise to be far-reaching in their results. Social service, unknown only a few years ago, is now an indispensable adjunct of the modern hospital organization. Training schools for nurses have become highly specialized educational institutions.

What is to be said of the progress made in our knowledge of mental diseases? Certainly much has been accomplished during the last century. The earliest American contributor to this branch of medicine was Benjamin Rush (1745-1813), professor in the Medical Department of the University of Pennsylvania, member

of the Continental Congress, a signer of the Declaration of Independence and one time physician-in-chief to the American armies. His "Medical Inquiries and Observations into Diseases of the Mind," which appeared in 1812 was the first publication of the kind in this country. It is interesting to note that he condemned the misuse of mechanical restraint, advocated hydrotherapy and recommended the appointment of instructors to direct the employment and amusement of patients. Incidentally he was the chairman of a committee appointed by the College of Physicians of Philadelphia to memorialize Congress and the legislature of Pennsylvania on the evils of alcoholism. Reference should also be made to the fact that he opposed capital punishment, advocated the abolition of slavery and objected to the study of the classics as a required part of the college curriculum. He even favored woman suffrage. In addition to his other activities this remarkable man was treasurer at one time of the United States Mint, vice-president of the American Bible Society, one of the founders of Dickinson College and associated for many years with Franklin in the work of the American Philosophical Society. Certainly he was many years in advance of his time. When his work on "Diseases of the Mind" appeared, the word psychiatry was unknown in this country. The term lunatic, which first appeared in the English statutes in 1320, during the reign of Edward the Second, was still in quite general use. The only state hospital for mental diseases was the one at Williamsburg, Virginia. Such institutions were universally known as asylums for many years.

Insanity was generally discussed in the terminology of Pinel and Esquirol as including mania, melancholia, dementia and idiocy. Those not thoroughly familiar with the psychiatry of the past may not understand the sense in which the word dementia was employed. It was defined by Esquirol in the following terms: "There exists,

therefore, a form of mental alienation which is very distinct—in which the disorder of the ideas, affections and determinations is characterized by feebleness and by the abolition, more or less marked, of all the sensitive, intellectual, and voluntary faculties. This is dementia." It was looked upon usually as a terminal state following excitements or depressions and in some rare instances as being primary in origin.

There have been many important developments in psychiatry since the days of Benjamin Rush. The mania, melancholia and dementia of the eighteenth century have apparently gone for all time. The events of the last hundred years include more particularly the delimitation and complete differentiation of general paresis, the rise and fall of the paranoia concept, the description of the traumatic psychoses, the establishment of the alcoholic insanities as clinical entities, a study of the mental diseases due to endogenous and exogenous toxins, the recognition of the neuroses and psychoneuroses in their modern sense, the addition of the psychopathic personalities to our classification and the definition of manic-depressive insanity, dementia praecox and involutional melancholia. The mental states due to somatic conditions have been exhaustively studied and the psychoses associated with epilepsy and pellagra have been fully investigated. Psychology and psychiatry have been definitely correlated and pathological research placed upon a firm foundation. The psychiatric phraseology of today would have been practically meaningless to the students of Pinel. Curiously enough the word psychiatry, which goes back to nearly 1800 in the literature of Germany and Italy has only been used for a few years in this country and England. The word psychosis is of even more recent origin.

This modern era may be said to have been ushered in by the preliminary studies made of general paresis by

Haslam in 1798. These were followed by the researches of Bayle, Delaye and finally Calmeil, which definitely established the integrity of that disease as a clinical entity. Even then its specific origin was only a matter of conjecture. When Esmarch and Jessen suggested that general paresis was a syphilitic disease in 1857, their views were rejected by men as prominent as Charcot and Déjerine. Although paranoia is a term which has appeared in the literature of medicine for centuries, it has only had the significance now attached to it since the latter part of the nineteenth century. Its description was foreshadowed perhaps by the monomania of Esquirol and Pritchard and the partial insanity of Rush and others. Heinroth, Griesinger, Magnan, Lasègue, Régis, Falret, Mendel, Krafft-Ebing, Herz, Snell, Werner, Schüle, Ziehen, Kraepelin and many other well-known psychiatrists have played a part in the evolution of paranoia which only definitely displaced the wahnsinn, verrüchtheit, and various other designations of the earlier writers, in the neighborhood of 1890. Paranoia is a term which has only been infrequently used since the general acceptance of Kraepelin's paranoid forms of dementia praecox. Its territory has been still further invaded by paraphrenia, the fate of which, however, is somewhat uncertain as yet. The forerunners of the psychopathic personalities were the moral insanity of Pritchard, the insanity of degeneracy of Morel, Magnan, Régis, Lombroso, etc., and the "demifous et demiresponsables" of Grasset, Trélat and others. The introduction of the "constitutional inferiority" idea into the psychiatry of this country was directly attributable to Adolf Meyer following the work of Koch in Germany. After the elaborate study of alcoholism made by Magnus Huss in 1852 the psychoses due to that condition were described by Bonhöffer, Magnan, Korsakow, Kraepelin and various other writers. The psychoneuroses represent the devel-

opments of Brachet, who wrote on hysteria in 1847, Briquet, Oppenheim, Lasègue, Möbius, Charcot, Janet, Babinski, Beard, Kraepelin and many others. To Meyer again we are indebted for the first exhaustive study and classification of the traumatic psychoses. The description of amentia by Meynert in 1881 was of considerable significance. The first comprehensive study of mental disorders associated with the use of cocaine was made by Erlenmeyer in 1886. The same writer was responsible for the first elaborate investigation of morphinism in the year following. Circular insanity was described by Falret in 1851 and again as "folie à double forme" by Baillarger in 1854. Hecker was responsible for an event of great importance in the history of psychiatry when he published his description of hebephrenia in 1871. Kahlbaum in his "Katatonia" made a contribution which was destined to influence the future of medicine in 1874.

In the meanwhile what is to be said as to the progress of pathological research? The earliest contribution to psychiatry from that point of view was made by Morgagni in 1761, his opinions being based on the autopsy reports in some thirteen cases. Greding in 1790 published the results of autopsies in a series of thirty-seven cases. The findings at that time included variations in the thickness of the skull, adhesions and thickenings of the dura, changes in the consistency of the cerebrum and cerebellum, effusions into the ventricles and various gross defects. The early writers attached a great deal of importance to the pineal gland changes. These pathological conditions were so generally reported, that Portal in the eighteenth century went so far as to say that "Morbid alteration in the brain or spinal marrow has been so constantly observed, that I should greatly prefer to doubt the sufficiency of my senses, if I should not at any time discover any morbid change in the brain, than to believe that mental disease could exist without any

physical disorder in this viscus, or in one or other of its appurtenances." Pinel spoke very discouragingly, however, of the results and Esquirol finally reached the conclusion that nothing really important had been accomplished after all. In his Charenton reports (1835) he expressed himself on this subject as follows:—"However important may have been the researches of anatomists made during our days into diseases which affect the mind, we may venture to repeat that pathological anatomy is yet silent as to the seat of madness, and that it has not yet demonstrated what is the precise alteration in the encephalon which gives rise to this disease. What shall we, then, think of the rash pretensions of those who assume that they can fix upon the diseased portion of the brain, judging merely from the character of the disease?" In 1836 Guislain summarized the various lesions found in insanity at autopsy under nine headings—congestion of the brain or meninges or both, serous congestion of the same, cerebral softening, adhesions of the membranes to each other or to the brain, cerebral induration, cerebral hypertrophy, and abnormalities of the brain or skull. The appointment of a pathologist at the Utica State Hospital in 1868 as a result of the remarkable interest taken in this subject by Dr. John P. Gray must be looked upon as one of the important events in the history of American psychiatry. The later developments of the nineteenth century included studies of general paresis, cerebral syphilis, arteriosclerosis, senility, epilepsy, mental deficiency, pellagra and various other somatic conditions. It may fairly be said, at least, that pathology has kept fully abreast of the progress made by clinical psychiatry during the nineteenth century.

Notwithstanding all of these advances, the generally recognized mental diseases, as late as 1895, included the following types:—mania, melancholia, dementia, imbecility, idiocy, general paresis, chronic delusional insanity

or paranoia and senile insanity. This was in substance the psychiatry of Savage, Maudsley, Clouston, Blandfield, Régis, Chapin, Kellogg, Spitzka, Kirchoff, Berkley and many other well-known writers of a comparatively recent date. A new era in the history of mental medicine was ushered in by Kraepelin when the sixth edition of his "Psychiatrie" appeared in 1899. This established manic-depressive insanity and dementia praecox as clinical entities. Kraepelin called attention to the fact that excitements and depressions frequently recur in the same individual, often with frequent attacks but with no marked tendency towards mental enfeeblement. This class of cases he grouped together as manic-depressive psychoses and pointed out certain characteristics common to the excitements and depressions included. He showed that certain other forms of depression marked by anxiety, fear, restlessness, self-accusation, marked suicidal tendencies, etc., were common to the involutional period of life. To this anxious depression the name involution melancholia has been applied, although Kraepelin is now somewhat in doubt as to its differentiation from the manic-depressive group. To certain other cases characterized by emotional dulness, apathy, hallucinations with phantastic delusions, and in some types, mannerisms, negativism, stereotypy, verbigeration, etc., tending sooner or later towards deterioration, he attached the name dementia praecox. This included the hebephrenia of Hecker and the katatonia of Kahlbaum.

Wernicke in 1906 advanced the hypothesis that psychical symptoms may be attributed to disturbances of various association mechanisms. These interruptions were to be found in various parts of the psychical reflex arcs. This included the psychosensory tracts or receptive mechanisms, the intrapsychical tracts or elaboration mechanisms and the psychomotor mechanisms. Manic-depressive psychoses were looked upon as representing

a disorder of the intrapsychic mechanism, while dementia praecox was considered to be an illustration of a disturbance of the psychomotor mechanisms. This was an exceedingly interesting but purely theoretical scheme for putting psychiatry on a definite anatomical and pathological basis.

The progess made by Kraepelin, Stransky, Wernicke, Bleuler, Ziehen and other modern psychiaters led to renewed interest in pathological research. This was to a considerable extent due to the suggestion of Kraepelin that dementia praecox was autotoxic and endogenous in origin. The neurons were exhaustively studied by Alzheimer and changes in metabolism thoroughly investigated by Folin and many others. To the researches of Nissl and Alzheimer in 1904 we are largely indebted for an accurate knowledge of general paresis. Studies of the cortex in dementia praecox by Alzheimer and many others have been extremely interesting if not conclusive. The introduction of lumbar puncture by Quincke and the studies of the cerebrospinal fluid made by Widal, Plaut, Nonne, Mott and others were of great aid in diagnostic procedure. These have been supplemented by the Wassermann reaction, the colloidal gold test, etc. The isolation of the treponema pallidum in the cortex settled the question of the identity of general paresis and cerebral syphilis for all time.

Another line of research responsible in no small measure for the remarkable progress of psychiatry during the last few decades was that instituted by Freud, Jung and others in their studies of psychological mechanisms. It is a rather remarkable fact that it is only in comparatively recent years that a study of the psychological processes of the normal mind has been looked upon as essential to an understanding of the mental reactions involved in the development of a psychoneurosis or psychosis. This is really the basis of Freud's work.

Psychiatry may be said to be practically the only branch of medical science in which a study of pathological processes has not been based largely upon physiological and anatomical foundations. Our textbooks for many years have insisted that "insanity" was a disease of the brain but have not given much consideration to a correlation of the physiology with the pathology of that organ. The application of psychological methods to psychiatric research was largely a result of the studies of hysteria by Janet. This was supplemented by the important contribution of Breuer and Freud in 1895 calling attention to their theories in regard to the production of the psychoneuroses by psychic traumas, usually of a sexual nature. Freud's views were outlined more fully in his "Selected Papers on Hysteria," "Three Contributions to the Sexual Theory," and his studies of the "Psychopathology of Everyday Life," etc. The psychological processes of dementia praecox and paranoia were subjected to elaborate studies by Freud, Jung and various other authors.

The relation existing between psychology and psychiatry has been placed on a very practical basis by the studies of shell shock and other hysterical conditions so important during the recent war. Probably nothing will contribute more towards a recognition of the importance of psychiatry than the discovery made early in the war that mental diseases and defects were responsible for more disabilities than were attributable to almost any other single cause. Certainly the inactivity of many years has been followed by an awakening which has placed modern psychiatry on a dignified plane and its progress will now compare favorably with the accomplishments of any other branch of medicine. The statement is, I think, justified, that psychiatry has been established on a thoroughly scientific basis as the result of the work of comparatively few years. We have, however,

reached a stage where careful analyses should be made of the clinical data upon which future progress entirely depends.

A brief consideration of existing conditions should be sufficient to show this conclusively. Psychiatric literature is, and for many years has been, characterized largely by an unfortunate absence of accurate scientific information which would warrant the conclusions reached in many instances by the authors of our textbooks. We have been subjected to an avalanche of theories and a remarkable paucity of facts. In the discussion of abstract propositions where concrete evidence is not obtainable this is of course unavoidable. There has, however, been a very noticeable oversight of many facts which the wealth of clinical material in our hospitals has placed at our disposal. Our literature has been filled with too many unsubstantiated statements. There is no reason why many of the views entertained by various authorities should be matters of personal opinion or based entirely on individual observation. The fact that there are over two hundred thousand cases of mental disease in the state hospitals of this country, with an admission rate of sixty thousand annually, is sufficient evidence to justify the statement that there is no lack of material for accurate studies.

A brief reference to some of the discrepancies shown in a consideration of the various psychoses will serve to illustrate the need of more accurate information on many of these subjects. In discussing the predisposing causes of mental diseases, for instance, White [1] made the following statement, which is perfectly correct: "An inherited predisposition to mental disorder is found in from 30 to 90 per cent of cases according to different authorities, while the average for all conditions has been estimated at from 60 to 70 per cent." Information on

1. White, William A.: Outlines of Psychiatry. Seventh edition, 1919.

this subject is certainly far from being complete or satisfactory. The Thirty-first annual report of the State Hospital Commission shows that of 4,492 first admissions to the New York hospitals during the year ending June 30, 1919, 2,003, or 44.6 per cent, were reported as having a family history of insanity, nervous diseases, alcoholism or other neuropathic taint. As far as could be determined 55.4 per cent showed no evidence of heredity in their family history. The necessity of further information on this important subject would appear to be obvious. The question as to the relation between syphilis and general paresis may be said to have been definitely settled for all time. The origin of this disease has, however, been the subject of controversy since 1857. Paton [2] in a review of this discussion in 1905 states that Gudden found a history of syphilis in 35.7 per cent of his cases, Hirsch, in fifty-six per cent, Jolly, in sixty-nine, Mendel, in seventy-five, and Alzheimer, in ninety per cent. In the light of our present knowledge this difference of opinion and experience is quite interesting and illuminating.

The most extravagant and misleading statements made about etiological factors, perhaps, are those which relate to the alcoholic psychoses. This was due largely to the statements of enthusiastic propagandists who were advocating prohibitory legislation. The facts of the matter are that when the use of liquor was unrestricted, the admission rate of alcoholic psychoses, as shown by the New York state hospital reports, had averaged ten per cent for a number of years (1908 to 1913).

Frequent contributions have been made from time to time to the literature of psychiatry on the subject of dementia praecox. Voluminous articles have been written on its pathology, psychological mechanisms, etiology, etc. Many of the theories advanced are not in harmony with what little definite information we possess. Many

2. Paton, Stewart: Psychiatry. 1905.

of the theses on this subject have been based on the study of a surprisingly small number of cases. The statement has been made [3] that attacks either of a syncopal or epileptic nature are among the most important physical symptoms of dementia praecox, and "occur in about eighteen per cent of the cases." In his eighth edition Kraepelin speaks of convulsive attacks of various sorts in sixteen per cent of all cases of dementia praecox, and says that they also occur in a few cases of manic-depressive insanity. These findings are certainly not consistent with those of other observers. In a review of eight hundred cases, five hundred of dementia praecox, one hundred and eighty of manic-depressive insanity and sixty in each of the "allied to" groups, Simon [4] found convulsions in less than one per cent of the total number of cases in which epilepsy or organic conditions could be definitely excluded. In a study of 367 cases of dementia praecox Ullman [5] found convulsive manifestations in 2.7 per cent of the total. He also reported seizures in 1.4 per cent of 340 cases of manic-depressive insanity. Kraepelin formerly held that recovery was to be expected in about eight per cent of the cases of hebephrenic dementia praecox and thirteen per cent of the cases of katatonia (seventh edition). Notwithstanding this, he says in his eighth edition in one place: [6] "Further investigations of a series of observations carried on extensively and carefully for decades must show how far the view, which is gaining in probability for myself, is correct, that permanent and complete recoveries of dementia praecox, though they may perhaps occur, still in

3. Diefendorf, A. Ross: Clinical Psychiatry. 1918.
4. Simon, T. W.: The Occurrence of Convulsions in Dementia Praecox, Manic-Depressive Insanity and the Allied Groups. The State Hospital Bulletin, November 15, 1914.
5. Ullman, A. E.: Proceedings of the Inter-hospital Meeting at the Central Islip State Hospital. The State Hospital Bulletin, November 15, 1914.
6. Kraepelin, E.: Psychiatrie. Vol. 3, 1913.

any event belong to the rarities." As Kraepelin himself suggests, the widely varying views on this subject are due to different conceptions as to what constitutes dementia praecox and what is to be considered a cure. Certainly we are in need of further information. On June 30, 1918, there were 37,352 patients in the state hospitals of New York.[7] Twenty-one thousand nine hundred and two cases were diagnosed as dementia praecox. Fifty-four of these were discharged as recovered during the year. This represents 3.2 per cent of the 1,687 cases discharged as recovered, 2.8 per cent of the 1,883 cases of dementia praecox admitted during that period (first admissions) and .2 per cent of the 21,902 cases of dementia praecox in the hospitals. The reports of the State Psychopathic Hospital at the University of Michigan show 1.19 per cent of recoveries in the cases of dementia praecox discharged during a period of eleven years. Reference is made to these discrepancies not in any spirit of criticism but for the purpose of pointing out the necessity of utilizing such facts as may be available.

There is nothing new about this suggestion. It was strenuously advocated by Louis, the founder of one of the greatest French schools of medicine many years ago. This was referred to by his pupil and admirer, Oliver Wendell Holmes, in his farewell address to the Harvard Medical School in 1882 in the following words: "The 'numerical system,' of which Louis was the greatest advocate, if not the absolute originator, was an attempt to substitute series of carefully recorded facts, rigidly counted and closely compared, for those never-ending records of vague, unverifiable conclusions with which the classics of the healing art were overloaded. The history of practical medicine had been like the story of Danaides.

7. Thirty-first Annual Report of the New York State Hospital Commission. 1918.

'Experience' had been, from time immemorial, pouring its flowing treasures into buckets full of holes."

A determined effort has been made by the American Psychiatric Association to correlate the activities of the various state hospitals for mental diseases and utilize the great wealth of clinical material within the walls of these institutions for such studies as may promote the advancement of psychiatry. With this end in view a committee was appointed at the annual meeting at Niagara Falls in 1913 to formulate a plan for the compilation of statistical data relating to mental diseases. The conclusions reached by this committee are illustrated by the following quotation from their report in 1917: "That the statistical data annually compiled by the various institutions for the insane throughout the country should be uniform in plan and scope is no longer open to question. The lack of such uniformity makes it absolutely impossible at the present time to collect comparative statistics concerning mental diseases in different states and countries, and extremely difficult to secure comparative data relative to movement of patients, administration and cost of maintenance and additions. The importance and need of some system whereby uniformity in reports would be secured have been repeatedly emphasized by officers and members of this Association, by statisticians of the United States Census Bureau, by editors of psychiatric journals, and by administrative officials in various states. We should know accurately the forms of mental disease occurring in all parts of the country; we should know the movement of patients in every hospital for the insane; we should know the cost of maintenance of patients and the amounts spent for additions and improvements in every state hospital; we should be able to compile annually complete data concerning these and other matters, and compute rates and draw comparisons therefrom.

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Such data would serve as the basis for constructive work in raising the standard of care of the insane, as a guide for preventive effort, and as an aid to the progress of psychiatry."

A permanent committee on statistics has been maintained by the Association since 1913. The following statistical tables were officially adopted some years ago and are now in general use: 1. General information; 2. Financial statement; 3. Movement of patients; 4. Nativity and parentage of first admissions; 5. Citizenship of first admissions; 6. Psychoses of first admissions, types as well as principal psychoses to be designated; 7. Race of first admissions classified with reference to principal psychoses; 8. Age of first admissions classified with reference to principal psychoses; 9. Degree of education of first admissions classified with reference to principal psychoses; 10. Environment of first admissions classified with reference to principal psychoses; 11. Economic condition of first admissions classified with reference to principal psychoses; 12. Use of alcohol by first admissions classified with reference to principal psychoses; 13. Marital condition of first admissions classified with reference to principal psychoses; 14. Psychoses of readmissions, types as well as principal psychoses to be designated; 15. Discharges of patients classified with reference to principal psychoses and condition on discharge; 16. Causes of death of patients classified with reference to principal psychoses; 17. Age of patients at time of death classified with reference to principal psychoses; 18. Duration of hospital life of patients dying in hospital, classified with reference to principal psychoses.

An elaborate statistical manual fully explaining the use of these tables has been furnished to the psychiatric hospitals of the country by the Association. Since this work has been undertaken the full cooperation of the in-

stitutions of the following states has been assured: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin and Wyoming, and the District of Columbia. Practically every state hospital in the United States is now officially represented in this important movement. The success of this undertaking has been largely due to the active cooperation of the National Committee for Mental Hygiene through its Bureau of Statistics. It should receive the enthusiastic support of all who are interested in the future progress of modern psychiatry.

CHAPTER XIV

THE CLASSIFICATION OF MENTAL DISEASES

When the American Psychiatric Association first approached the problem of formulating a definite scheme for the collection of statistical data relating to mental diseases it was immediately confronted with the necessity of adopting an official classification of psychoses purely for purposes of uniformity. This undertaking, which suggested no difficulties at the outset, led to all kinds of unexpected complications and embarrassments. Classifications of "insanity" are almost as old as the terms mania and melancholia and have been given a grossly exaggerated importance by the space which for so many years has been devoted to a consideration of this subject in textbooks. This, if nothing else, appears to have been demonstrated quite clearly by the discussions of the last few years.

A review of the literature of psychiatry shows that attempts to classify the psychoses date back almost to the beginning of medical history. Hippocrates is said to have recognized three forms of mental disorders—mania, melancholia and dementia, although there is some question as to his having used those terms in accordance with their present significance. Celsus [1] also described three forms of insanity. The first, which was accompanied by febrile symptoms, he termed phrenitis. The second was characterized by sadness and caused by black bile. The third was accompanied in some cases by false images, while in others the whole mind or judgment was impaired.

1. Bucknill, J. C., and Tuke, D. H.: A Manual of Psychological Medicine. 1879.

The Roman law divided the dementes or mad into two classes, the excited or violent (furiosi) and those deficient in intellect (menti capti). Aretaeus[2] discussed mania, melancholia and dementia, apparently regarding them as all manifestations of some one disease process. Melancholia, he said, "does not affect all the faculties of the mind; the patients are sad and dismayed; they are without fever." He described it as only an initial stage of mania. Caelius Aurelianus[3] did not regard melancholia as a form of insanity, "from which disease it differs in that the stomach chiefly suffers, while in Madness it is the head." Galen in his writings referred to amentia or dementia, imbecility, mania and melancholia.

In the sixteenth century Felix Plater[4] devised the following classification: 1. Mentis imbecillitas: Hebetudo, tarditus, oblivio, imprudentia. 2. Mentis consternatio: Somnus immodicus, carus, lethargus, apoplexia, epilepsia, convulsio, catalepsis, ecstasis. 3. Mentis alienatio: Stultitas, temulentia, amor, melancholia, hypochondriacus morbus, mania, hydrophobia, phrenitis, saltus viti. 4. Mentis defatigatio: Vigiles, insomnia. Linnaeus[5] in 1763 called his fifth class of diseases Mentales, divided into three orders: Ideales, Imaginarii and Pathetici. Sauvages in the same year included Hallucinationes, Morositates and Deliria under the heading of Vesaniae in his "Nosologia Methodica." Vogel[5] in 1764 divided Paranoiae into mania, melancholia, and amentia. Cullen in 1772 included insanity or the Vesaniae

2. Bucknill, J. C., and Tuke, D. H.: A Manual of Psychological Medicine. 1879.

3. Ibid.

4. Jelliffe, S. E.: A Summary of the Origins, Transformations and Present-day Trends of the Paranoia Concept. The Medical Record, April 5, 1913.

5. Bucknill, J. C., and Tuke, D. H.: A Manual of Psychological Medicine. 1879.

in the neuroses, divided into four groups—Amentia, Melancholia, Mania and Oneirodinia. He described eight varieties of melancholia and three of mania. Oneirodinia included somnambulism and nightmare. According to Jelliffe, Plocquet described six varieties of delirium in his treatise on paranoia in 1772. Pinel in 1791 limited himself to four classes of insanity—mania, melancholia, dementia and idiotism. He looked upon melancholia as a delirium exclusively directed upon one object or series of objects and accompanied by sadness. Idiotism was an advanced form of dementia. Esquirol in 1838 modified Pinel's scheme somewhat and described Lypemania, Monomania, Mania, Dementia and Imbecility or Idiocy. The active discussion of classifications of various kinds led Pritchard [6] to make the following interesting comment in 1822: "I cannot conceive anything more preposterously absurd than the attempt to classify diseases with all the divisions and technology of a botanical or zoological system, and to force what is essentially disorder and confusion to assume the appearance of that order and symmetry which nature displays in the arrangement of the organized world. An aetiological classification is the only mode of terminology and arrangement that can be of any practical advantage, and that is all that we have to consult." He nevertheless published a classification of his own which was essentially psychological in principle, although containing nothing new.

The German school of this time was exceedingly prolific in the production of classifications, as will be shown by the following interesting and elaborate scheme of Flemming's [7] published in 1844:—

6. Pritchard, J. C.: A Treatise on Diseases of the Nervous System. 1822.
7. Flemming, C. F.: Ueber Classification der Seelenstörungen, etc. Allgemeine Zeitschrift für Psychiatrie. 1844.

FAMILY-AMENTIA—MENTAL DISEASES

First Group—Infirmitas (Feeblemindedness).

Varieties:

A. According to etiology:

1. Inf. primaria, or congenita (Idiocy)
2. Inf. secundaria, or acquisita (Imbecility)
   a. Inf. e. morbo (Brain injuries, encephalitis, epilepsy, etc.)
   b. Inf. senilis

B. According to degree:

1. Inf. adstricta, or partial feeblemindedness (Weakness of a single mental faculty)
   a. Dysmnesia (weakness of memory)
   b. Inf. adstr. surdo-mutorum (feeblemindedness of the deaf and dumb)
   c. Inf. adstr. coecorum (feeblemindedness of the blind)
2. Inf. sparsa—General (absolute or relative weakness of general mental faculties)

Second Group—Vesania.

First Order:—Dysthymodes or Dysthymia.

Varieties:

A. According to types:

1. Dys. transitoria or subita (acute)
2. Dys. continua (chronic)
3. Dys. remittens (remittent)

B. According to degree:

1. Dys. adstricta (limited or partial)
   a. Dys. atra (melancholia or lypemania)
      1. Homesickness.
      2. Ferocitas et morositas ebriosorum (Alcoholic excitement and ill humor)
   b. Dys. candida (cheerful dysthymia or melancholia hilaris)
   c. Dys. mutabilis (changeable or alternating)
2. Dys. sparsa (apathica)—General dysthymia (melancholia attonita).

Second Order:—Vesania anoëtos or Anoësia—Deliria of various forms.

Varieties:

A. According to types:

1. Anoësia transitoria or subita (acute)

Species:

a. A. e febre—fever delirium
b. A. e potu—alcoholism
c. A. ex affectu—affective
d. A. semisomnis—confusion of drunken sleep
e. A. Somnambula—somnambulism

2. Anoësia continua—chronic
3. Anoësia remittens—remittent.

B. According to degree:

1. Anoësia adstricta—partial or limited
   a. A. ad sensationes—hallucinatory delirium
   b. A. ad cogitationes—delusional delirium
2. Anoësia sparsa—general
   a. Delirium tremens

Third Order:—Vesania Maniaca (Mania).

Varieties:

A. According to types:

1. Mania transitoria or subita—acute
   a. M. s. a febre—encephalitic delirium
   b. M. s. a potu—alcoholic mania
   c. M. s. ex affectu—affective mania
   d. M. s. e partu—puerperal mania
   e. M. s. e mordo occulto—amentia occulta, which includes the above forms.
2. Mania continua—chronic mania
3. Mania remittens—remittent mania

B. According to degree:

1. Mania adstricta seu instinctiva—partial or limited mania. (Mania sine delirio of Pinel.) (Moral insanity, monomania.)
2. Mania sparsa—general mania.

This is said to have been based on Jacobi's somato-aetiological theory (1830) that "there is no disease of the

mind existing as such, but that insanity exists solely as the consequence of disease, either functional or organic, in some parts of the body system." Heinroth[8] saw in the various mental disorders a disturbance of one or the other of the normal functions of the mind which he divided into three classes. "If the cause of derangement is in relation to one of these manifestations of mental existence—and to one or another it must belong, since the mind is ever occupied with phenomena related to one out of the three classes—we have only to inquire to which modification the disorder actually refers itself, or whether it affects the feelings, the understanding, or the will. Since one of these has possession of our consciousness, or is at least predominant at every point of time, whichever function of the mind happens to be that which is falling into disorder, by it the form of insanity is determined." Griesinger[9] in 1845, on the other hand, was of the opinion that all classifications must in the end return to the principal forms previously described—mania, melancholia and dementia. In 1860 Morel announced his well-known classification: Hereditary Insanity, which included imbecility and idiocy; Toxic Insanity (alcohol, lead, mercury, etc., as well as cretinism); Insanity produced by the transformation of other diseases (hysterical, epileptic, hypochondriacal); Idiopathic Insanity (general paresis, etc.); Sympathetic Insanity, and Dementia, "a terminative state."

Maudsley spoke of Affective or Pathetic, and Ideational Insanity. The former was divided into maniacal perversion, melancholic depression and moral alienation. The latter included general forms (mania or melancholia), partial forms (monomania or melancholia), dementia (primary and secondary), general paralysis

8. Pritchard, J. C.: A Treatise on Insanity. 1835.
9. Griesinger, W.: Die Pathologie und Therapie der psychischen Krankheiten. 1845.

and imbecility. Régis described five forms of mania, five of melancholia, two of insanity of double form, and a systematized progressive insanity. In addition to these, he divided constitutional insanity into two groups—the degeneracy of evolution and the degeneracy of involution. Krafft-Ebing[10] included melancholia, mania, primary dementia, exhaustion psychoses and terminal conditions in his group of psychoneuroses. Under the heading of degenerative forms he described constitutional affective insanity, paranoia and periodical insanity. Neurasthenic, epileptic, hysterical and hypochondriacal psychoses were grouped together under the constitutional neuroses. In addition to this he described chronic intoxications, organic brain diseases and arrested development. At a meeting of the International Congress of Alienists in 1889 the following classification was adopted: 1. Mania; 2. Melancholia; 3. Periodical Insanity; 4. Progressive Systematical Insanity; 5. Dementia; 6. Organic and Senile Dementia; 7. General Paralysis; 8. Insane Neurosis (hysteria, epilepsy, hypochondriasis, etc.); 9. Toxic Insanity; 10. Moral and Impulsive Insanity; and 11. Idiocy. Ziehen[11] had a classification scheme which represented an advance in some respects. Mania and melancholia were described as affective psychoses, and paranoia as an intellectual disorder. He also referred to mixed or combined forms. Imbecility, general paresis, terminal deteriorations, etc., were grouped together under the general heading of psychoses with intellectual defects.

The British Medico-Psychological Association has had an official classification for many years. This was quoted by Savage[12] in 1907 as follows:—

10. Krafft-Ebing, R. v.: Lehrbuch der Psychiatrie. Third edition. 1888.
11. Ziehen, Th.: Psychiatrie, 1894.
12. Savage, G. H.: Insanity and Allied Neuroses. Fourth edition. 1907.

1. Congenital or infantile mental deficiency (idiocy or imbecility) occurring as early in life as it can be observed:
   - (1) Intellectual
     - a. Without epilepsy
     - b. With epilepsy
   - (2) Moral
2. Insanity arising later in life:
   - (1) Insanity with epilepsy
   - (2) General paralysis of the insane
   - (3) Insanity with the grosser brain lesions
   - (4) Acute delirium (acute delirious mania)
   - (5) Confusional insanity
   - (6) Stupor
   - (7) Primary dementia
   - (8) Mania
     - a. Recent
     - b. Chronic
     - c. Recurrent
   - (9) Melancholia
     - a. Recent
     - b. Chronic
     - c. Recurrent
   - (10) Alternating Insanity
   - (11) Delusional Insanity
     - a. Systematized
     - b. Non-systematized
   - (12) Volitional Insanity
     - a. Impulse
     - b. Obsession
     - c. Doubt
   - (13) Moral Insanity
   - (14) Dementia
     - a. Secondary or terminal
     - b. Senile

An elaborate classification was also officially adopted by the Royal College of Physicians of England [13] about the same time. This recognized seven varieties of mania, seven of melancholia and six of dementia. The subject of classifications would not be complete without a refer-

13. Savage, G. H.: Insanity and Allied Neuroses. Fourth Edition. 1907.

ence to Kraepelin. His eighth edition (1910-1915) showed the following:—

1. Psychoses accompanying Injuries to the Brain:
   - Concussion
   - Traumatic delirium
   - Traumatic epilepsy
   - Traumatic enfeeblement
2. Psychoses accompanying Diseases of the Brain:
   - Meningitis
   - Brain tumors
   - Abscesses
   - Hemorrhages
   - Thrombosis
   - Embolism
   - Encephalitis
   - Multiple sclerosis
   - Lobar sclerosis
   - Huntington's chorea
   - Amaurotic idiocy
3. The Intoxication Psychoses:
   - Acute:
     - Endogenous—Uraemia, Eclampsia, Acute yellow atrophy of the liver.
     - Exogenous—Ether, Santonin, Hashish, Nitrous Oxide Gas, Atropin, Hyoscin, Carbonic Oxide Gas, etc.
   - Chronic:
     - Alcohol:
       - Delusional (jealousy)
       - Delirium Tremens
       - Korsakow's Psychosis
       - Acute Hallucinosis (paranoid)
       - Alcoholic paralysis and pseudo-paralysis
     - Morphine
     - Cocaine
4. The Infectious Psychoses:
   - Fever delirium
   - Infection delirium
   - Acute confusion (amentia)
   - Infective exhaustive conditions
5. The Psychoses of Syphilis:
   - Syphilitic neurasthenia
   - Gummatous growths
   - Syphilitic pseudo-paralysis
   - Syphilitic apoplexy

Syphilitic epilepsy
Paranoid forms
Tabetic psychoses
Hereditary syphilis

6. Dementia Paralytica:
   Paralytic, Depressive, Expansive and Agitated forms
7. The Senile and Presenile Psychoses:
   Presenile psychoses
   Arteriosclerotic psychoses
   Senile deterioration
8. The Thyroigenous Psychoses:
   Basedow's Disease
   Myxoedema
   Cretinism
9. The Endogenous Dementias:
   Dementia praecox:
      Dementia simplex
      Hebephrenia
      Depressive dementia
      Circular form
      Agitated form
      Periodical form
      Katatonia
      Paranoid form
      Schizophasia
   Paraphrenia:
      Systematica
      Expansiva
      Confabulans
      Phantastica
10. The Epileptic Psychoses.
11. The Manic Depressive Psychoses:
   Manic form
   Depressive form
   Mixed form
12. The Psychogenic Disorders:
   Nervous exhaustion
   Dread neurosis
   The Induced psychoses
   The psychoses of the Deaf
   The Accident or Traumatic neuroses
   The Psychogenic disorders of Prisoners
   The Querulants
13. Hysteria
14. Paranoia

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15. The Constitutional Disorders:
    - Nervousness
    - The Compulsion neuroses
    - The Impulsion neuroses
    - Sexual perversions
16. The Psychopathic Personalities:
    - The Excitable
    - The Unstable
    - The Impulsive
    - The Eccentric
    - The Liar and Swindler
    - The Antisocial
    - The Quarrelsome
17. Defective Mental Development (oligophrenia)

At the annual meeting of the American Medico-Psychological Association in 1869 Nichols called attention to the statistical studies proposed by the International Congress of Alienists in 1867. As a result of his efforts a series of twenty-one statistical tables was prepared and used unofficially for several years, although never formally adopted. A committee reported again on this subject in 1896, but without any definite action being taken. The Italian psychiatrists have had a classification which has been in general use by them for some time. Interest in this subject has been stimulated by the frequent publications of Kraepelin during the last thirty years. Meyer and Hoch have been largely responsible for bringing his work to the attention of the profession in this country, and Kraepelin's classification with some modifications has come into very general use here. It was not until the publication of its twenty-first annual report in 1909 that the New York State Commission in Lunacy adopted a modern classification of psychoses.

At that time there were practically as many different forms of statistical reports in the United States as there were hospitals. In the meanwhile almost every textbook published during the last fifty years has announced a new classification of mental diseases. They have been

based on etiology, pathology, symptomatology and psychology. English, French, German, Italian and American classifications have appeared, each representing, as a rule, different schools of psychiatry. Kempf [14] would discard the term psychosis altogether and speak only of neuroses as "more consistent with the integrative functions of the nervous system." For diagnostic purposes he proposes to separate the benign from the pernicious processes and classify them according to their psychological mechanisms as suppression, repression, compensatory, regression and dissociation neuroses. The easiest way out of all these difficulties, as Southard [15] has said, would be "to deny the existence of entities in mental disease. There are two forms of this contention; first, that mental disease is nothing more or less than insanity, an entity itself, a genus with but one species, or secondly, that all victims of mental disease are individually to be provided with entities, that is, all examples of mental disease are sui generis. The development of psychiatry has killed the former contention stone dead, but the latter contention still flourishes to an extent among those who overstress the individual factor. And this latter contention is bolstered up by the existence of so many psychopathic patients of whom a diagnosis cannot be rendered for practical or theoretical reasons. However, there are no really consistent advocates of the sui generis plan of classification." It is interesting to note that he concedes . . . "that the American Medico-Psychological Association's classification, adopted as it has been by a great number of American institutions and by the United States Government for war purposes, is a reasonably good classification and aware that its con-

14. Kempf, E. J.: The Mechanistic Classification of Neuroses and Psychoses Produced by Distortion of Anatomic-Affective Functions. The Journal of Nervous and Mental Diseases. August, 1919.

15. Southard, E. E.: A Key to the Practical Grouping of Mental Diseases. Journal of Nervous and Mental Diseases. January, 1918.

stituent elements fairly well correspond with what all American psychiatrists agree upon."

Southard[16] raises the question as to how this classification can be used for diagnostic purposes. He answers this query by suggesting "A key to the practical grouping of mental diseases"[17] . . . "to be followed, when necessary, like a botanical key in the search for the classification of a plant." . . . "It is a key to study and not an analytical classification with any pretence to finality." . . . "The plan is not so much an excursion into nosology as an essay in the technique of psychiatric diagnosis for the tyro."

The problem presenting itself in the adoption of a classification purely for statistical purposes was not a question of a scientific grouping of the psychoses based on either etiological, anatomical, pathological, clinical or prognostic considerations. It was a question of compiling a tabulation or list of clinical entities recognized generally by American psychiatrists, subject to such changes and modifications as may be necessary to make it conform to accepted standards. As a matter of fact, no adequate reason for a classification of mental diseases for any other than statistical purposes has even been advanced by the authors of our textbooks on psychiatry. They do not contribute anything of value whatever to our knowledge of symptomatology, diagnosis or treatment. Practically the only point on which the writers of our textbooks agree is that there is no one fundamental principle upon which a satisfactory classification can be based. It is unfortunate that tradition seems to demand the serious consideration of a problem which many believe admits of no solution and which would mean little or nothing to the future of psychiatry if it were solved.

16. Southard, E. E.: Recent American Classification of Mental Diseases. Transactions, American Medico-Psychological Association, 1918.
17. Southard, E. E.: A Key to the Practical Grouping of Mental Diseases. Journal of Nervous and Mental Diseases. January, 1918.

The views of the Committee on Statistics are shown by a quotation from the report made to the Association at its meeting in New York in 1917:—"Your Committee feels that the first essential of a uniform system of statistics in hospitals for the insane is a generally recognized nomenclature of mental diseases. The present condition with respect to the classification of mental diseases is chaotic. Some states use no well-defined classification. In others the classifications used are similar in many respects but differ enough to prevent accurate comparisons. Some states have adopted a uniform system, while others leave the matter entirely to the individual hospitals. This condition of affairs discredits the science of psychiatry and reflects unfavorably upon our Association, which should serve as a correlating and standardizing agency for the whole country. The large task of your Committee therefore has been the formulation of a classification which it could unanimously recommend for adoption by the Association. The task was accomplished only after several prolonged conferences at which classifications now in use in various states and countries, and the recommendations of leading psychiatrists were considered. The classification finally adopted is simple, comprehensive and complete; it copies no other classification but includes the strong features of many others; it meets the demands of the best modern psychiatry but does not slavishly follow any single system. In short, your Committee has endeavored to formulate a classification that could be easily used in every hospital for the insane in this country and that would meet the scientific demands of the present day."

Since the compilation of statistical data relating to the various activities of the hospitals for mental diseases in this country was definitely decided upon by the Association at its meeting in 1913, the membership of the Committee on Statistics has from time to time included the

following:—Dr. Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene; Dr. Owen Copp, Physician in Chief and Superintendent, Pennsylvania Hospital, Department for Nervous and Mental Diseases; Dr. E. Stanley Abbot, Medical Director, Public Charities Association of Pennsylvania; Dr. Henry A. Cotton, Medical Director, New Jersey State Hospital, Trenton; Dr. L. Vernon Briggs, Boston, former member of the Massachusetts State Board of Insanity; Dr. Adolf Meyer, Professor of Psychiatry, Johns Hopkins University; Dr. Albert M. Barrett, Professor of Psychiatry and Neurology, University of Michigan; Dr. George H. Kirby, Director of the Psychiatric Institute, New York City; Dr. Samuel T. Orton, Professor of Psychiatry and Director of the Psychopathic Hospital, University of Iowa; Dr. Frankwood E. Williams, Associate Medical Director, National Committee for Mental Hygiene; Dr. Elmer E. Southard, Director of the Massachusetts State Psychiatric Institute; Dr. C. Macfie Campbell, Director of the Boston Psychopathic Hospital, and the writer. Associated with the committee officially were: Dr. August Hoch, formerly Director of the Psychiatric Institute, New York; Dr. H. M. Pollock, Statistician of the New York State Hospital Commission; Miss Edith M. Furbush, Statistician of the National Committee for Mental Hygiene, and various others.

The Association's classification of mental diseases at this time (1921) is as follows:

1. Traumatic psychoses:
   (a) Traumatic delirium
   (b) Traumatic constitution
   (c) Post-traumatic mental enfeeblement (dementia)
   (d) Other types
2. Senile psychoses:
   (a) Simple deterioration
   (b) Presbyophrenic type
   (c) Delirious and confused types
   (d) Depressed and agitated type

(e) Paranoid types
(f) Pre-senile type
(g) Other types

3. Psychoses with cerebral arteriosclerosis
4. General paralysis
5. Psychoses with cerebral syphilis
6. Psychoses with Huntington's chorea
7. Psychoses with brain tumor
8. Psychoses with other brain or nervous diseases:
   (a) Cerebral embolism
   (b) Paralysis agitans
   (c) Meningitis, tubercular or other forms (to be specified)
   (d) Multiple sclerosis
   (e) Tabes dorsalis
   (f) Acute chorea
   (g) Other diseases (to be specified)
9. Alcoholic psychoses:
   (a) Pathological intoxication
   (b) Delirium tremens
   (c) Korsakow's psychosis
   (d) Acute hallucinosis
   (e) Chronic hallucinosis
   (f) Acute paranoid type
   (g) Chronic paranoid type
   (h) Alcoholic deterioration
   (i) Other types, acute or chronic
10. Psychoses due to drugs and other exogenous toxins:
    (a) Opium (and derivatives), cocaine, bromides, chloral, etc., alone or combined (to be specified)
    (b) Metals, as lead, arsenic, etc. (to be specified)
    (c) Gases (to be specified)
    (d) Other exogenous toxins (to be specified)
11. Psychoses with pellagra
12. Psychoses with other somatic diseases:
    (a) Delirium with infectious diseases
    (b) Post-infectious psychosis
    (c) Exhaustion delirium
    (d) Delirium of unknown origin
    (e) Cardio-renal diseases
    (f) Diseases of the ductless glands
    (g) Other diseases or conditions (to be specified)
13. Manic-depressive psychoses:
    (a) Manic type
    (b) Depressive type
    (c) Stuporous type

(d) Mixed type
(e) Circular type
(f) Other types

14. Involution melancholia
15. Dementia praecox:
    (a) Paranoid type
    (b) Catatonic type
    (c) Hebephrenic type
    (d) Simple type
    (e) Other types
16. Paranoia or paranoid conditions
17. Epileptic psychoses:
    (a) Epileptic deterioration
    (b) Epileptic clouded states
    (c) Other epileptic types (to be specified)
18. Psychoneuroses and neuroses:
    (a) Hysterical type
    (b) Psychasthenic type
    (c) Neurasthenic type
    (d) Anxiety neuroses
    (e) Other types
19. Psychoses with psychopathic personality
20. Psychoses with mental deficiency
21. Undiagnosed psychosis
22. Without psychosis
    (a) Epilepsy without psychosis
    (b) Alcoholism without psychosis
    (c) Drug addiction without psychosis
    (d) Psychopathic personality without psychosis
    (e) Mental deficiency without psychosis
    (f) Others (to be specified)

PART II

THE PSYCHOSES

CHAPTER I

THE TRAUMATIC PSYCHOSES

Traumatic affections of the nervous system have been recognized in a general way for centuries, although the psychoses resulting directly from injuries have been given very little consideration or attention in the past. Concussion of the brain, referred to in the writings of Hippocrates, Galen and Celsus, was first studied post-mortem in 1705 by Littré. It is now discussed in all textbooks on surgery. Usually milder forms are described with evidences of shock or collapse—a brief period of unconsciousness, partial or complete, with visual and auditory disturbances, dizziness, muscular relaxation or temporary paralysis, respiratory symptoms, dilated pupils, weakness of the pulse, lowered temperature, etc. Delirium and stupor or coma are associated with more severe injuries. If the cortex is lacerated, twitchings or convulsions often occur. Returning consciousness shows various reactions—headache, vomiting, amnesia, etc., and may be succeeded by convulsions, encephalitis or mental disturbances. DaCosta [1] says that some cases are followed by a complete change in the personality, forgetfulness, headache, insomnia, attacks of depression, lassitude and vertigo with increased susceptibility to alcohol, heat and physical exertion. Acute surgical injuries, and compression due to growths, hemorrhages, fractures, etc., have been exhaustively studied. Compression has been differentiated surgically [2] by the later appearance of a gradual unconsciousness, more defi-

1. DaCosta, J. C.: Modern Surgery. Seventh edition. 1918.
2. Ibid.

nite paralysis, usually on the side opposite the injury, slow pulse and stertorous respirations, unequal immobile pupils, choked disc, convulsive movements, etc. Traumatic encephalitis and meningitis have long been recognized but present no definitely characteristic symptoms which distinguish them from simple inflammatory reactions.

One of the earliest accurate descriptions of brain injury associated with mental symptoms was that of the well-known "crowbar" case. It will be recalled that while blasting in Vermont in 1848 a man by the name of Gage had an iron bar driven through the frontal region of his skull, making a complete recovery and living for over twelve years after the accident. An autopsy showed that only the prefrontal cortex was involved. A very interesting report on his mental condition was made by Dr. John M. Harlow:[3] "His contractors, who regarded him as the most efficient and capable foreman in their employ previous to his injury, considered the change in his mind so marked that they could not give him his place again. The equilibrium, or balance, so to speak, between his intellectual faculties and animal propensities seems to have been destroyed. He is fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint or advice when it conflicts with his desires, at times pertinaciously obstinate yet capricious and vacillating, devising many plans of future operations, which are no sooner arranged than they are abandoned in turn for others appearing more feasible. A child in his intellectual capacity and manifestations, he had the animal passions of a strong man. Previous to his injury, though untrained in the

3. Harlow, John M.: Recovery from the Passage of an Iron Bar through the Head. Boston, 1868.

schools, he possessed a well balanced mind, and was looked upon by those who knew him as a shrewd, smart business man, very energetic and persistent in executing all his plans of operation. In this regard his mind was radically changed, so decidedly that his friends and acquaintances said he was 'no longer Gage.' "

Various other cases reported have established the fact that mental deterioration usually follows extensive injuries to the frontal lobes. Witmer[4] summarizes this as consisting of "slight intellectual degradation, moral and emotional perversion, deficiency of attention, and volitional inefficiency."

A work by Ericksen in 1866 on "Railway Injuries to the Nervous System" and Page's book in 1882 on "Injuries of the Spine" pointed the way to an extensive study of the so-called traumatic neuroses. This characterization of the functional disturbances of the nervous system following injuries was apparently the result of a monograph by Oppenheim on that subject in 1889. They had previously been considered as purely organic in origin. Traumatic hysteria was discussed very fully at various times by Charcot, whose work is so well known as to require no comment. In 1892 Friedmann described a vasomotor complex due to concussion. This is accompanied by such symptoms as headache, dizziness, loss of capacity for both physical and mental work with an increased fatigability, irritability, memory defects, and changes in personality, such as sensitiveness and eccentricity with a marked intolerance to alcohol. This condition appears some time after the symptoms of concussion and shock have subsided and may last for some months. Friedmann looked upon this as purely a vasomotor disturbance. It is probably an important factor, in some

4. Witmer, Lightner: Brain: Functions of the Cerebral Cortex. Reference Handbook of the Medical Sciences. 1899.

cases at least, of "shell shock." Traumatic epilepsy may result from foci of softening or other local areas of injury to the brain. Neurasthenia, hysteria and other neuroses are now generally looked upon as being essentially functional and not organic in origin, although they may follow a trauma. The simulation of these conditions has led to a great deal of discussion, notwithstanding the fact that Oppenheim found them in only about four per cent of his cases. Köppen (1897) made a very elaborate study of the postmortem lesions in the "traumatic neuroses." He found that violence to the skull often resulted in small injuries at the base of the frontal area, at the apices of the parietal lobes or in the occipital region. The pathological changes involved represented localized encephalitis with hemorrhagic infiltration. Foci of softening were often found in the cerebral cortex. He noted coma and convulsions with only minute areas of destruction of the basal cortex at autopsy. This would indicate a severe irritation, probably due to circulatory disturbances. The resulting symptoms he thought were very likely to be confused with general paresis. In cases of extreme dementia following traumatism he often found no pathological lesion other than a cicatrix in the cerebral cortex.

One of the most important contributions to the literature of traumatism as associated with psychoses was made by Adolf Meyer [5] in 1903. Notwithstanding the statements of such observers as Savage, appearing as late as 1905, he expressed the opinion that traumatism and general paresis are not directly related except that injuries may rarely act as precipitating factors. He does not expect to find psychoses resulting from small lacerations or other similar lesions in the cortex. As a

5. Meyer, Adolf: The Anatomical Facts and Clinical Varieties of Traumatic Insanity. Transactions of the American Medico-Psychological Association, 1903.

result of his observations Meyer[6] described the following forms of traumatic disorders:—

1. The direct post-traumatic deliria with the following subdivisions:
   a. Preeminently febrile reactions;
   b. The delirium nervosum of Dupuytren, not differing from deliria after operations, injuries, etc.;
   c. The delirium of slow evolution of coma, with or without alcoholic basis;
   d. Forms of protracted deliria, usually with numerous tabulations, etc. (with or without alcoholic or senile basis).

2. The post-traumatic constitution:
   a. Types with mere facilitation of reaction to alcohol, grippe, etc.;
   b. Types with vasomotor neurosis;
   c. Types with explosive diathesis;
   d. Types with hysteroid or epileptoid episodes, with or without convulsions (such as most reflex psychoses);
   e. Types of paranoic development.

3. The traumatic defect conditions:
   a. Primary defects allied to aphasia;
   b. Secondary deterioration in connection with epilepsy;
   c. Terminal deterioration due to progressive alterations of the primarily injured parts, with or without arteriosclerosis.

6. Meyer, Adolf: The Anatomical Facts and Clinical Varieties of Traumatic Insanity. Transactions of the American Medico-Psychological Association, 1903.

4. Psychoses in which trauma is merely a contributing factor:
   a. General paralysis, with or without traumatic stigmata;
   b. Manic-depressive and other transitory psychoses, catatonic deterioration and paranoic conditions, with or without traumatic stigmata.

5. Traumatic psychoses from injury not directly affecting the head.

The most interesting feature perhaps of this classification is the post-traumatic constitution. Meyer[7] quotes Köppen's excellent description of this condition as follows:—"Men who have suffered from a cranial lesion in which there has been a severe damage of the brain, with or without an injury to the cranial bones, on their recovery from the immediate results complain especially of all kinds of sensations in the head, which they describe either as pain or as pressure with feeling of crawling or dullness of the head, more or less definitely located at the point where they were hit. They frequently become dizzy, and at times even faint for a short time without any epileptic attack. Although slight attacks of dizziness may recur frequently, epilepsy with typical attacks need not develop. There is further in our patients a great irritability and nervosity. The formerly good-natured or even-tempered persons become irascible, hard to get along with; formerly conscientious fathers cease to care for their family. The irritability at times increases to excessive violence in which actions occur of which they have no remembrance; the nervous system is not only under the influence of psychic irritation but especially susceptible

7. Meyer, Adolf: The Anatomical Facts and Clinical Varieties of Traumatic Insanity. Transactions of the American Medico-Psychological Association, 1903.

to the influence of alcohol or tobacco, in even small quantities. The working capacity of our patients is very poor. It suffers variously, although such individuals often give an impression of perfect capacity; and since the morbid symptoms are essentially subjective, they always arouse doubts whether they could not do something at least, even if they are unable to work in a noisy shop or on a high scaffolding. It is, however, certain that the patients are very forgetful; in giving orders or doing errands they make the most incredible blunders; frequently everything must be written down. Their capacity for thought has suffered, as is sometimes shown, especially in the great slowness of thought. These patients are unable to concentrate their attention, not even in occupations which serve for mere entertainment, such as reading or playing cards. They like best to brood unoccupied; even conversation is rather obnoxious. This point is so characteristic that it gives a certain means of distinction from simulation, which as a rule does not interfere with taking part in the conversations and pleasures of the ward and playing at cards, which means as a rule too much of an effort for the brain of actual sufferers. The patients are usually advised to take light physical work, but even there they are perfectly useless. Excessive sensitiveness of their head obliges them to avoid all work which is connected with sudden jerks, bending over is especially troublesome; and there is hardly any physical work in which this can be avoided; the blood rushes to the head, headache increases, dizziness sets in and the work stops. Patients feel best when in the open air, inactive and undisturbed. There are but few objective signs, such as increase of pulse, flushing of the face, dermatographia, trembling and uncertainty in the Romberg position, such as is shown in all general nervosity. But the complaints are so exceedingly uniform that the uniformity of the subjective complaints justifies the con-

clusion that they are well founded. The picture thus is briefly that of a mental weakness shown by easy fatigue, slowness of thought, inability to keep impressions, irritability, and a great number of unpleasant sensations, before all headaches and dizziness."

It is exceedingly interesting to note that Schläger in discussing disorders resulting from concussion of the brain, in 1857, as quoted by Griesinger,[8] makes the following comment on these cases:—"Very often the character and disposition changes; in 20 cases great irascibility, an angry, passionate manner even to the most violent outbursts of temper was remarked—less frequently over-estimation of self, prodigality, restlessness, disquietude; in 14 cases there were attempts at suicide, frequently weakness of memory, confusion." Meyer found, furthermore, in his analysis "all the possible degrees of episodes of more or less dazing and dream states; from a temporary dazed feeling to episodes of hysteriform or epileptoid absences. Apart from the subjective feeling of haziness, the characteristic trait is the occurrence of complete dream interpretations and peculiar fabrications, which color the primary traumatic insanity as well as the subacute and episodic types, and even the paranoic type."

Kraepelin[9] describes concussion and compression, traumatic delirium, traumatic epilepsy and traumatic mental enfeeblement. He finds these conditions due to concussion, compression or injury to the brain substance either at the site of traumatism or at some point opposite. There may be contusions, lacerations of the brain tissue or hemorrhages, usually in the frontal, occipital or parietal regions. Injuries to the cortex are not demonstrable in all cases. The circulatory disturbances he con-

8. Griesinger, W.: Mental Pathology and Therapeutics. Translated by C. L. Robertson and James Rutherford. 1867.
9. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2. 1910.

siders an important factor and thinks that they account for smaller lesions of the cerebral tissue in many instances where no gross changes are apparent. More or less disturbance of consciousness is to be expected in these conditions. The patient is somewhat dull, drowsy, clumsy, forgetful and absentminded. Memory is sometimes much affected. In more severe cases there is a complete loss of consciousness which may last a few minutes only or be a matter of hours or days. On waking, the patient is bewildered and confused, with a marked disturbance of apprehension. Perception is involved as in the recognition of complicated pictures or the understanding of long and detailed statements. A clear comprehension of events and surroundings is lacking. The patients may know that they are in a hospital without knowing what hospital it is or why they are there and are unable to recognize persons around them. Occasionally hallucinations of sight or of hearing occur. At times delusional ideas are expressed, usually of a depressive type. They have no realization whatever of their own condition. The memory disturbance may take the form of a Korsakow's complex. Memory gaps appear sometimes for events just before the accident and in other cases cover long periods of time. While as a rule events of the remote past are retained, recent impressions are quickly lost. They cannot repeat what is read to them, do not remember the names of persons about them, and sometimes show evidence of falsification of memory with fabrication. All idea as to time is usually lost. Mental reactions become noticeably difficult. The patient is distractible, cannot count accurately, has difficulty in repeating dates and numbers and forms no correct judgment as to his own personal affairs. Many express themselves, however, on the other hand, with great facility and readiness. Some show considerable fatigability. The mood is often elated with a tendency to facetiousness, although frequently

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tearful and anxious, particularly at night. Irritable, faultfinding trends usually appear later. As a rule they are talkative, restless, sensitive, abusive or even insolent. Bonhöffer has reported stereotypies as well as stuporous and other catatonic types. In speech the patients often become incoherent, make mistakes, forget words or coin new ones. Similar mistakes appear in reading and writing. Asymbolism and parapraxia are observed. Residual symptoms of the brain injury are headaches, dizziness, fainting attacks and convulsions. The pupils are contracted and do not react properly to light. The pulse is frequently very slow.

In fractures at the base of the brain there is likely to be a hemorrhage from the ears and deafness from injuries to the labyrinth. Involvement of the pyramidal tracts may cause unilateral weakness or even paralysis, with increased knee-jerks and occasionally a Babinski reflex. Usually the mental symptoms appear promptly after the injury. Sometimes, however, there is for a while only a slight dulness. The patients are unable to go about the house unassisted, and act peculiarly, becoming clouded or delirious after a few hours or days. Improvement begins to show itself in a few weeks as a rule unless some intercurrent affection intervenes, but the symptoms may persist for several months. Meningitis or abscess formation often causes death. These developments are usually indicated by a marked delirium or coma. There may also be paralysis, convulsions, disturbances of speech, rise of temperature, etc. The subsidence of active delirious symptoms is sometimes succeeded by Kraepelin's traumatic neurosis. Following the traumatic delirium or concussion psychosis described, mental enfeeblement sometimes appears. Clouding of consciousness is not a factor in this condition. There is usually a complete change in the psychic personality. The patients tire easily, are incapable of sustained men-

tal efforts, forgetful, absentminded, complain of dizziness, dulness, noises in the ears, pressure in the head, migraine, palpitation, etc. Or they may be irritable, with outbursts of anger often alternating with apathy. Some are depressed, anxious or hypochondriacal. There is a greatly increased susceptibility to alcohol and intoxication often induces excitements, epileptiform attacks, stupors or rarely actual dreamstates.

Wildermuth found a history of traumatism in 3.8 per cent of his cases of epilepsy. The statistics of the German Army show 4.2 per cent. When the convulsive manifestations are in the foreground and the picture is one of traumatic epilepsy, advanced mental deterioration may be exhibited, with impairment of mental capacity and disturbance of memory. These cases remain apathetic, forgetful, dull, irritable and childish. At autopsy there are often no evidences of any great injury to the brain. Occasionally extensive areas of softening may, however, be found. Usually there is a widespread destruction of the nerve cells and their associated fibres. There is often a proliferation of the glia, with changes in the vessel walls which may be thickened and dilated, with capillary hemorrhages and softenings. Extensive areas of the cortex may be involved. Bleuler's description of the traumatic psychoses is not essentially different from that of Kraepelin.

The differentiation of these conditions as suggested in the statistical manual of the American Psychiatric Association is as follows:—

"The diagnosis should be restricted to mental disorders arising as a direct or obvious consequence of a brain (or head) injury producing psychotic symptoms of a fairly characteristic kind. The amount of damage to the brain may vary from an extensive destruction of tissue to simple concussion or physical shock with or without fracture of the skull.

"Manic-depressive psychoses, general paralysis, dementia praecox, and other mental disorders in which trauma may act as a contributory or precipitating cause, should not be included in this group.

"The following are the most common clinical types of traumatic psychosis and should be specified in the statistical record of the hospital:—

"(a) Traumatic delirium: This may take the form of an acute delirium (concussion delirium), or a more protracted delirium resembling the Korsakow mental complex.

"(b) Traumatic constitution: Characterized by a gradual post-traumatic change in disposition with vasomotor instability, headaches, fatigability, irritability or explosive emotional reactions; usually hyper-sensitiveness to alcohol, and in some cases development of paranoid, hysteroid, or epileptoid symptoms.

"(c) Post-traumatic mental enfeeblement (dementia): Varying degrees of mental reduction with or without aphasic symptoms, epileptiform attacks or development of a cerebral arteriosclerosis.

"(d) Other types."

We have not as yet, unfortunately, sufficient data at our disposal to warrant intelligent conclusions as to the frequency of the various forms of traumatic psychoses. One hundred and twenty-seven cases reported from the New York state hospitals during a period of six years were classified as follows:—

Form	*Number*	*Per cent*
Traumatic delirium	38	29.32
Traumatic constitution	32	25.19
Post-traumatic mental enfeeblement	32	25.19
Others, not specified	25	19.70

Undoubtedly with a more definite understanding as to the delimitation of these different conditions more complete information will be available later. We are nevertheless justified in feeling that the frequency of the trau-

matic psychoses considered as a group can be determined with a fair degree of accuracy. Of 49,640 first admissions to the New York hospitals during a period of eight years, 161, or .32 per cent, were definitely ascribed to traumatism. Twenty-one other hospitals in fourteen different states reported forty-five cases of traumatic psychoses (.24 per cent) in 18,336 admissions. Two hundred and seventeen cases (.3 per cent) have therefore been reported in a total of 70,987 first admissions to forty-eight state hospitals for mental diseases in this country.

CHAPTER II

THE SENILE PSYCHOSES

Never until very recently has any great importance been attached to the psychoses due solely to age or much interest manifested in them. These forms of insanity in the majority of our textbooks have appeared only under the designation of senile dementia. This is true of the earlier editions of Krafft-Ebing and many other writers. Clouston referred to senile dementia as one of four varieties of mental enfeeblement. "Most cases,"[1] he says, "fall under three varieties. The first has as its chief characteristics depression and lethargy. The second consists chiefly of excitement, sometimes with a certain exaltation, but always with irritability, restlessness, unreason, suspicion, and change of affection. The third variety consists chiefly of the abolition of mind in all its forms, or senile dementia, and of complete dotage. In some cases those three varieties form three different stages in the same case. In others they do not change." Régis, in a work on mental medicine covering 668 pages in all, devoted two and one-half pages to a consideration of the insanity of old age. Ziehen[2] in 1894 included "dementia senilis" with general paralysis, epileptic, alcoholic and terminal deteriorations in his group of "acquired defect psychoses" and characterized it as "a chronic organic psychosis of advanced years, the

1. Clouston, T. S.: Unsoundness of Mind. 1911.
2. Ziehen, Th.: Psychiatrie. 1894.

principal symptom of which is a progressive intelligence defect." Excitements, depressions, confusional states, deliria, deteriorations, mental mechanisms of any and all kinds, occurring late in life, were usually disposed of without any effort at differentiation by the very convenient method of relegating them to the obscure domain of senile dementia. This is a field which on exploration has been found to be one of considerable interest. It has been pointed out that manic-depressive insanity not infrequently occurs in persons of advanced age. Uncomplicated alcoholic psychoses are not at all rare. Bleuler has advanced the theory that dementia praecox and certain of the senile conditions are similar if not identical processes. General paresis has been demonstrated in the later periods of life by modern laboratory methods and the diagnosis confirmed at autopsy. Cerebral syphilis certainly cannot be left out of consideration. Toxic deliria are encountered now and then. Even the psychoneuroses are possibilities.

Kraepelin first established the importance of involution melancholia as a form of depression warranting separate consideration. The anxiety psychoses occurring late in life have since been made the subject of exhaustive study by various observers. It was discovered that many of the mental disturbances of the aged could be attributed directly to arteriosclerosis alone. Korsakow's syndrome has been found to be as frequently due to senility as it is to alcoholism. Some of our more modern works on psychiatry have included very elaborate chapters on purely "presenile" conditions. Kraepelin[3] in his last edition devotes twenty pages to a review of this subject.

He divides the presenile psychoses into melancholia, anxieties, late katatonia, depressive delusional conditions, anxious delusional types terminating in advanced deterioration, depressive states with deterioration, ex-

3. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

citements and paranoid forms. The development of Kraepelin's conception of melancholia has been fully discussed in another chapter. He speaks also of the occasional occurrence of anxious conditions in late life with excitements or an exalted mood with grandiose ideas or even paranoid manifestations. These may present a catatonic picture with more or less inaccessibility, stereotypies, peculiar attitudes and movements, absurd resistance, impulsiveness, desultoriness and disconnected speech. Our knowledge as to the exact causation and nature of katatonia still being far from complete, he knows of no reason why a process of that kind should not be recognized as one of the presenile conditions. Thalbitzer suggested the name, depressive delusional insanity (depressiven Wahnsinn), for the conditions exhibiting numerous delusions and active hallucinations with an emotional reaction "determined by the course of the disease." Rehm also described a similar form associated with arteriosclerotic changes and characterized by hallucinations of hearing, together with mannerisms and sterotypies.

Kraepelin [4] describes first a group of presenile cases showing the development of depressive ideas and anxious states with a progressive mental enfeeblement. Delusions of self-accusation and persecution present themselves early in the course of the disease. Symptoms of a more decidedly hypochondriacal type may occur later. Hallucinations and somatic delusions also develop, often with nihilistic trends. Everyone is dead, the patient is the only one left in the world, has no legs, cannot go out of the house, has entirely disappeared, does not exist any more, etc. The consciousness is usually fairly clear, orientation is well preserved and there is no marked disturbance of thought. Anxious excitement is often an important feature. The termination is in mental enfeeble-

4. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

ment invariably. This condition manifests itself usually at about the fortieth year. He is of the opinion that this symptom complex cannot be considered either as belonging to manic-depressive insanity or attributable to arteriosclerosis, nor is it catatonic in its origin.

He finds another group of cases occurring in women between forty-five and fifty years of age, characterized pathologically by striking anatomical changes and clinically by a very unfavorable course. A depression first appears, followed by anxiety with thoughts of suicide. Hallucinations do not occur as a rule. Restless and agitated excitement is a prominent symptom leading finally to confusion, clouding of consciousness, and disorientation. This is followed by a condition of mental enfeeblement terminating in early death. Well-defined postmortem changes have been found, such as the "grave alteration" described by Nissl, proliferation of the glia, swelling of the protoplasmic bodies with cell enclosures, etc., but no fibril formation. Large quantities of lipoid material are found in the surrounding vessels and in the vascular sheaths. This condition, also observed by Nitsche and Döblin, Kraepelin looks upon as probably a presenile process of autotoxic origin, there being no other cause demonstrable. He does not consider this disease process as being related to "late katatonia," genuine katatonia or manic-depressive insanity.

He would also separate out another smaller group as probably belonging to the presenile forms—cases with excitements of long duration, terminating in a marked deterioration. This condition is likely to be of sudden onset, with depressive ideas of self-accusation, later showing an active restlessness. These patients soon become clouded and confused, often with grandiose ideas suggesting general paresis. They may show memory falsifications. Stuporous states occasionally intervene, followed by an active excitement. Echolalia is common.

The excitement may last for months or even for a year or more and often stops suddenly, always with deterioration later. In the cases which have come to autopsy Alzheimer has reported severe and widespread cell alterations, fibre loss, glia reactions, and changes in the vessel walls, somewhat suggesting the pathological findings in general paresis. The cases in this group usually have been of the male sex between sixty and seventy years of age. Kraepelin speaks of the clinical picture as a mixture of the symptoms of general paresis, katatonia and manic-depressive psychoses and it is usually diagnosed as one or the other of these conditions.

The paranoid presenile forms occur usually in women. Consciousness is clear, although there may be a mild anxiety or hypochondriasis. The persecutory ideas are variable and changeable. Delusions of jealousy are common although hallucinations are infrequent. Memory is often somewhat impaired and retrospective falsifications are occasionally observed. The mood is as a rule anxious and suspicious. Suicidal tendencies often appear. Restlessness, excitement, impulsive actions and outbursts of anger are noted at times. Rarely a more cheerful mood develops. The disease may become stationary and show no marked changes for years.

Kraepelin himself seems to be very uncertain as to the significance and the delimitation of these various presenile forms. It must be confessed that some of the types described very strongly suggest the condition formerly looked upon by him as involutional melancholia. It will be noted that he considers as possible etiological factors the disturbance of metabolism which may result from regressive or involutional processes. The differentiation from manic-depressive forms, from arteriosclerotic disorders and from senile psychoses must also be looked upon as presenting some difficulties which cannot be en-

tirely disregarded. Many possibilities suggest themselves.

In the senile deteriorations Kraepelin notes particularly a loss in the capacity of apprehension and perception, with a sluggishness of the train of thought, a dulling of the emotions, a reduction of energy and the development of conduct disorders. Ranschburg in psychological tests noticed a lengthening of the reaction time, with a delay in the choice of action, the reading of words, the performance of addition, and the formation of judgment. The retardation was shown particularly in psychic processes and the association time. The reactions were, moreover, much more monotonous, irregular and unreliable than in the young. Memory tests also showed poor associations.

The most advanced form Kraepelin describes as senile dementia, a progressive mental enfeeblement in which the loss of apprehension and memory becomes a conspicuous feature. The perception of external impressions is diminished and delayed and there is a profound disorder of attention. Memory of the remote past is much better than it is for current events. Retrospective falsification is a common symptom. The patient is, moreover, unable to change old viewpoints or acquire new ones. Delusional manifestations such as childish egotism, foolish suspicions or notions of impending illness develop. Grandiose ideas often occur, delusions of great wealth being common. These symptoms are transitory and come and go without apparent reason. In some cases the hallucinations resemble those found in the alcoholic psychoses. Sooner or later there is a disturbance of consciousness leading to a dreamlike existence suggesting a delirium. There is a noticeable dulling of the emotional feelings. The patients become indifferent and apathetic, losing interest in their surroundings, and are often irritable and

excitable. In a certain number of cases depressive states develop, sometimes with suicidal tendencies. The delusions may be hypochondriacal or nihilistic in character. Complaints of persecution are common. Some of the patients show a simple, childish deterioration with seclusive tendencies. Stuporous or cataleptic states may develop. Others become uneasy, wander in the streets, remove their clothes, collect rubbish, or show sexual excitement. Restlessness at night is especially suggestive.

Delirious excited states ("Senile Delirium") characterized a certain number of Kraepelin's cases. In these, clouding of consciousness is marked. The presbyophrenic complex described by Kahlbaum often occurs. These cases are fairly clear mentally at first, as far as their surroundings are concerned, but show memory disturbances, particularly for recent events. Orientation is lost very soon and they fail to recognize old friends and relatives. Fabrications are resorted to for the purpose of remedying these defects of memory and delusions are very common. Nevertheless, judgment about many things is well retained. In some instances, however, orientation for time, place and person is completely lost. Kraepelin is in doubt as to whether presbyophrenia should be looked upon as constituting a definite entity or only a form of senile insanity. It may last for years or terminate in a marked deterioration. In some of the senile cases arteriosclerotic changes in the cortex are very pronounced. This is more noticeable in the depressive and anxious forms and in the incoherent varieties. These individuals become clouded, incoherent, and deteriorate rapidly.

There is also a characteristic paranoid form of senile psychosis. Delusions of suspicion and jealousy are common in these cases. They usually develop persecutory trends and often exhibit hallucinations of hearing. They sometimes show partial disorientation and gaps in the

memory. The mood is usually irritable and often anxious. There is very likely to be a disturbance of sleep and often signs of physical enfeeblement. There may be neurological symptoms caused by the arteriosclerotic complications, such as headache, pupillary changes, tremors of the tongue and disturbance of the reflexes. Tremors are also shown in the writing. Paraphasia occurs and there may be sensory aphasia or apraxia.

In severe cases of senile dementia Kraepelin expects to find definite lesions at autopsy. The brain weight is always decreased, sometimes to a very striking degree. The volume of the brain is reduced and the ventricles enlarged. The cortex is diminished in thickness, the frontal region being most affected. The parietal region may be involved, but not to any such extent as in general paresis. There may be localized areas of atrophy. Pachymeningitis and hemorrhagic membranes are often found. The microscope shows a proliferation of the glia cells and there is often some disturbance of the layering of the cortex. Cell alterations appear, with fatty degeneration, some neurones showing little more than a darkly colored nucleus. The glia cells are enlarged. There should be no marked changes in the vessels. Fatty changes in the ganglion cells are very noticeable. There is also some loss in the tangential fibres.

Quite characteristic of the senile brain is the occurrence of the miliary plaques or "drusen" described by Redlich in 1898. Fischer in 1907 reached the conclusion that these "drusen" were pathognomonic of presbyophrenia, as he did not find them in senile dementia, in other psychoses or in normal brains. Hübner, however, noted them in alcoholics and "circular" cases as well as in normal individuals. Oppenheim also found them in the brains of the aged when no psychoses were observed. The interior of the plaque is a homogeneous, dark-staining, structureless mass. Sometimes there is a clear space

around this center, with club- or spindle-shaped bodies in the periphery, representing remnants probably of neurones, glia cells or axis cylinders. The whole structure is encapsulated in glia fibres. These so-called plaques were spoken of by Fischer as "miliare Nekrosen" and by Redlich as "miliare Sclerosen." Kraepelin is of the opinion that they are associated either with senile cases showing arteriosclerotic changes or presbyophrenia. Alzheimer has described a senile atrophy of the brain with wedgeshaped areas showing cell loss. This is due to a gradual occlusion of the smaller vessels extending down from the meninges into the cortex, and may result in a hemorrhage, a softening or merely an atrophic area characterized by an absence of ganglion cells. He has also described another group of cases showing characteristic cell changes.

This condition has been given the name "Alzheimer's disease" by Kraepelin.[5] It is marked clinically by a gradual senile deterioration with organic brain changes. These cases show some thought defect, loss of memory, confusion, and clouding. Later they become restless, talkative, sing and laugh, etc. Aphasic disturbances develop early, with paraphasia or apraxia. There are speech disturbances ending in a senseless jargon and writing becomes impossible. An advanced deterioration ensues. Physically there is a general weakness and uncertain gait, sometimes with epileptiform attacks. The pupillary reaction may be lost and evidences of arteriosclerosis usually appear. The disease may last for many years. At autopsy "drusen" are common in the cortex and almost a third of the nerve cells are found to be destroyed. These are replaced by darkly-staining fibril bundles. There is marked neuroglia reaction, particularly around the "drusen" and retrogressive changes are found in the vessel walls. This disease usually

5. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

appears about the fortieth year and may be looked upon, Kraepelin says, as a "senium praecox," although its significance is not clear.

He finds the senile psychoses occurring usually between the ages of sixty-five and eighty, although they occasionally appear before sixty. Seven and sixty-seven hundredths per cent of his cases were between sixty and sixty-five years of age; ten per cent between sixty-five and seventy; thirty-five per cent between seventy and seventy-five; 27.8 per cent between seventy-five and eighty; 22.2 per cent between eighty and eighty-five; 10.5 per cent between eighty-five and ninety; and 2.78 per cent were over ninety years of age. Of 183 cases studied, twenty-three per cent were cases of presbyophrenia; sixty-three per cent of simple deterioration; eight per cent of arteriosclerotic origin; and the remainder, of delusional forms. More than half of the cases of presbyophrenia occurred in persons over seventy-five. The paranoid and arteriosclerotic forms occurred in younger individuals. In the alcoholic cases the Korsakow complex was common. The analysis of presenile psychoses made by Kraepelin is, to say the least, exceedingly interesting. Such clear-cut differentiations as he describes are, however, not always possible or necessary. Very few other writers have gone into the question so exhaustively, nor is his classification of these conditions generally accepted. Bleuler[6] in 1918 in discussing the presenile psychoses quotes Kraepelin's classification and also refers to Gaupp's anxious depressive forms. Under the senile deteriorations he describes "dementia senilis" and presbyophrenia. He also calls attention to the fact that Binswanger spoke of a "pre-senile dementia" occurring between the fortieth and fiftieth years of age and characterized by an emotional dulness and a diminished capacity for work. Bleuler speaks of

6. Bleuler, E.: Lehrbuch der Psychiatrie. 1918.

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the affective disturbances in advanced years as senile mania and melancholia, which he says may recover, the former frequently, the latter more rarely.

The American Psychiatric Association has only attempted to cover the principal groupings of the characteristic senile forms. The differentiation of these conditions as suggested in the statistical manual is as follows:—

"A well defined type of psychosis which as a rule develops gradually and is characterized by the following symptoms: Impairment of retention (forgetfulness) and general failure of memory more marked for recent experiences; defects in orientation and a general reduction of mental capacity; the attention, concentration and thinking processes are interfered with; there is self-centering of interests, often irritability and stubborn opposition; a tendency to reminiscences and fabrications. Accompanying this deterioration there may occur paranoid trends, depressions, confused states, etc. Certain clinical types should therefore be specified, but these often overlap:

"(a) Simple deterioration: Retention and memory defects, reduction in intellectual capacity and narrowing of interests; usually also suspiciousness, irritability and restlessness, the latter particularly at night.

"(b) Presbyophrenic type: Severe memory and retention defects with complete disorientation; but at the same time preservation of mental alertness and attentiveness with ability to grasp immediate impressions and conversation quite well. Forgetfulness leads to absurd contradictions and repetitions; suggestibility and free fabrication are prominent symptoms. (The general picture resembles the Korsakow mental complex.)

"(c) Delirious and confused types: Often in the early stages of the psychoses and for a long period the picture is one of deep confusion or of a delirious condition.

"(d) Depressed and agitated types: In addition to the underlying deterioration there may be a pronounced depression and persistent agitation.

"(e) Paranoid types: Well marked delusional trends, chiefly persecutory or expansive ideas, often accompany the deterioration and in the early stages may make the diagnosis difficult if the defect symptoms are mild.

"(f) Pre-senile types: The so-called 'Alzheimer's disease.' An early senile deterioration which usually leads rapidly to a deep dementia. Reported to occur as early as the fortieth year. Most cases show an irritable or anxious depressive mood with aphasic or apractic symptoms. There is apt to be general resistiveness and sometimes spasticity.

"(g) Other types."

The frequency of senile cases is shown by the fact that of 84,143 admissions to the New York hospitals during a period of sixteen years, 12,017, or 14.2 per cent, were over sixty years of age, while 8.4 per cent were between sixty and seventy years old, and 4.5 per cent between seventy and eighty. Of 49,640 first admissions to the New York state hospitals during eight years 4,724 cases, or 9.52 per cent, were diagnosed as senile psychoses. They constituted 9.63 per cent of the admissions in Massachusetts during 1919 and 10.61 per cent of the 18,336 admissions to twenty-one hospitals in fourteen other states. Of 70,987 admissions to all of the institutions referred to, 6,961, or 9.8 per cent, were senile psychoses.

During a period of eight years in the New York state hospitals, when the present classification was not adhered to absolutely, 4,724 senile psychoses were divided into types as follows:—Simple deterioration, 52.01 per cent; presbyophrenia, 5.75 per cent; delirious and confused states, 12.99 per cent; depressed and agitated

forms, 8.25 per cent; and paranoid varieties, 16.23 per cent. During the same period less than one per cent of presenile psychoses were reported. Since the Association's classification has been in use the same institutions show the following distribution of 1,351 senile psychoses during 1918 and 1919:—Simple deterioration, 56.24 per cent; presbyophrenia, 4.14 per cent; delirious and confused states, 13.53 per cent; depressed and agitated forms, 18.65 per cent; and paranoid varieties and presenile forms, less than one per cent. The senile psychoses in the Massachusetts hospitals during 1919 were divided as follows:—Simple deterioration, 56.94 per cent; presbyophrenia, 7.79 per cent; delirious and confused states, 7.45 per cent; depressed and agitated forms, 7.11 per cent; paranoid conditions, 18.64 per cent; and presenile forms, 2.03 per cent. In nineteen hospitals in other states 1,823 cases were classified as follows:—Simple deterioration, 64.39 per cent; presbyophrenia, 11.62 per cent; delirious and confused states, 9.59 per cent; depressed and agitated forms, 4.71 per cent; paranoid conditions, 6.91 per cent; and presenile forms, .27 per cent. The total of 6,842 cases referred to above were, therefore, distributed as to type as follows:—

Type	*Per Cent*
Simple deterioration	55.52
Presbyophrenia	7.40
Delirious and confused states	11.83
Depressed and agitated forms	7.26
Paranoid conditions	13.85

Four hundred and nineteen cases reported by the Ohio state hospitals in 1920 and not included in the above summary were shown as follows:—

Type	*Per Cent*
Simple deterioration	49.88
Presbyophrenic types	6.20
Delirious and confused forms	18.61
Depressed and agitated conditions	7.39
Paranoid states	15.75
Presenile types	2.14

These constituted in all 14.4 per cent of the 2,895 first admissions during the year, a much higher rate than that shown in other states. In analyzing these findings it should be borne in mind that the American classifications do not take into consideration presenile conditions as such, they being all reported with the senile psychoses, with the exception of involutional melancholia, which is, of course, shown separately.

Southard [7] has called attention to the margin of error in the diagnosis of senile psychoses. Forty-two cases unanimously diagnosed as "senile dementia" were "reviewed clinically and anatomically, with a surprisingly low general percentage of accuracy (sixty-six per cent) where either cerebral atrophy or cortical arteriosclerosis or both were regarded as confirmatory, and with still lower percentages: (48 per cent) where cortical arteriosclerosis was considered essential and (38 per cent) where cerebral atrophy was considered essential for a correct diagnosis." It is significant that exactly one-third of the cases studied were found by Southard to more properly "belong in a group of acute psychoses or other mental diseases occurring in old age but not dependent on recognizable senile changes."

7. Southard, E. E.: Anatomical Findings in Senile Dementia, etc. Transactions of the American Medico-Psychological Association, 1909.

CHAPTER III

THE PSYCHOSES WITH CEREBRAL ARTERIOSCLEROSIS

Sufficient weight has not been attached heretofore to the important influence of cerebral arteriosclerosis in the production of mental diseases. Unquestionably it has been a complicating factor in many of the generally recognized psychoses which has not been given adequate consideration. Its relation to involution melancholia as well as the presenile and senile disorders has been given a great deal of attention, but cannot as yet be clearly defined. Only in its syphilitic forms can it be looked upon as contributing to the clinical picture in general paresis. It is, however, productive of late deterioration in the chronic alcoholic conditions and in the manic-depressive psychoses occurring in advanced years. It plays a part frequently in the terminal stages of dementia praecox. In paranoia and the paranoid conditions of long standing it often becomes a factor to be reckoned with. Certainly in the differentiation of the epilepsies of the aged it must be taken into definite account.

The importance of arteriosclerosis, a term used first by Lobstein some seventy-five years ago, has long been recognized. Osler in referring to this subject made the following interesting comment:—"To a majority of men death comes primarily or secondarily through this portal. The onset of what may be called physiological arteriosclerosis depends, in the first place, upon the quality of arterial tissue (vital rubber) which the individual has inherited and secondarily upon the amount of wear and

tear to which he has subjected it. That the former plays the most important rôle is shown in the cases in which arteriosclerosis sets in early in life in individuals in whom none of the recognized etiological factors can be found. Entire families sometimes show this tendency to early arteriosclerosis, a tendency which cannot be explained in any other way than that in the make-up of the machine bad material was used for the tubing."

Our present knowledge as to the relation of syphilis to this disease has not changed the significance of the observations made by Osler in any way. Heredity more than any other one factor undoubtedly determines the development of both senility and arteriosclerosis. "When," as Lambert [1] expresses it, "physiological involution anticipates in time or exceeds in direction, extent and severity normal senescence, the various senile and arteriosclerotic disorders are the result." It is as a rule only in the later stages of the disease when focal symptoms occur or a psychosis develops that hospital care becomes necessary. Practically any of the vessels of the brain may be involved and it frequently happens that more than one is affected either directly or indirectly. The neurological symptoms resulting depend entirely on the location and extent of the lesion. Lambert [2] has made the following excellent anatomical classification of the more common arteriosclerotic processes:—

I. Incipient type.
II. Focal types.
  (a) Trunk disorders.
    1. Basilar-carotids.

1. Lambert, Charles I.: A Clinical-Anatomical Classification of the Senile and Arteriosclerotic Disorders. Transactions of the American Medico-Psychological Association. 1910.

2. Ibid.

(b) Branch disorders.
  1. Inferior cerebellar.
  2. Superior cerebellar.
  3. Posterior cerebral.
  4. Middle cerebral.
  5. Anterior cerebral.

(c) Twig disorders.
  1. Medullary.
  2. Cortical.

Some reference should be made, perhaps, to the focal symptoms resulting from more or less sharply circumscribed lesions which are productive of certain fairly well known complexes, whether due to arteriosclerotic softenings, hemorrhages, or growths. These have been concisely summarized by Barker [3] somewhat as follows:—

Frontal Lobes—Lesions of the left inferior frontal in righthanded persons cause motor aphasia. Subcortical involvements cause word dumbness. Disturbances in the anterior part of the frontal region are sometimes associated with the Witzelsucht of the German writers—a tendency towards joking and witticisms.

Central and Paracentral Lobules—Contralateral sensory, motor symptoms or a combination of the two. Monoplegias, anesthesias and Jacksonian epilepsies are characteristic. Contralateral tactile agnosia and apraxia occur, especially in lesions of the left hemisphere. An involvement of the left side may also cause a homolateral apraxia, dyspraxia or a tactile agnosia.

Parietal Lobes—Lesions in the anterior part cause contralateral somesthetic disturbances, tactile agnosia or apraxia. Involvement of the left angular gyrus may cause optic aphasia or alexia; if deep enough, hemianopsia results. The voluntary movement of the eye may be interfered with.

3. Barker, Lewellys F.: Monographic Medicine. Vol. 4, 1916.

Temporal Lobe—Lesions in the posterior half of the first temporal may cause Wernicke's sensory aphasia and a subcortical involvement, word deafness. Bilateral destruction of the first and transverse temporals causes cortical deafness. Extensive bilateral lesions in the lower part of these lobes result in mind deafness. Irritative lesions in the uncinate gyrus lead to hallucinations of taste and smell, with smacking of the lips and tongue movements.

Island of Reil—Lesions of the anterior part cause symptoms resembling Broca's motor aphasia. Lesions of the posterior part result in symptoms suggesting Wernicke's sensory aphasia. Transcortical motor and sensory aphasia may result.

Occipital Lobes—Lesions of the calcarine area give rise to hemianopsia, and bicortical involvements lead to cortical blindness. Bilateral lesions of the lateral surface may cause mind blindness.

Disturbances in the centrum ovale may cause monoplegias or monoanesthesias, and lesions in the corpus callosum, apraxic symptoms. Characteristic of cerebellar lesions are ataxias and disturbances of equilibrium, often with vertigo and paroxysmal vomiting.

An involvement of the corpora quadrigemina may cause pupillary changes, unilateral or bilateral paralysis of eye muscles, nystagmus, visual disturbances, deafness and ataxia or anesthesia.

Lesions of the cerebral peduncles may give rise to very characteristic syndromes. If the tegmentum and pes pedunculi (basis pedunculi) are both involved, there may be a complete hemiplegia of the opposite side with an oculomotor paralysis on the same side (Weber-Gubler syndrome). Or there may be in addition to this a marked tremor in the limbs of the paralyzed side (Benedikt's syndrome). A unilateral oculomotor paralysis may be combined with a cerebellar ataxia (Nothnagel's syndrome).

The thalmic syndrome of Déjerine and Roussy shows a contralateral hemianesthesia, violent and persistent pains on the anesthetic side, hemiataxia, hemichorea or hemiathetosis, slight temporary hemiparesis and sometimes hyperesthesia. Lesions further back, possibly involving the internal capsule, may cause hemianesthesia of touch, pain and temperature senses.

S. A. K. Wilson in 1912 called attention to a particularly important syndrome, designated by him as "progressive lenticular degeneration" and characterized by dysarthria, dysphagia, general tremors of the extremities, forced laughing and crying, muscular rigidities and contractures, with a slight intellectual impairment. Interesting features of this disease complex are that it is familial in type, but not hereditary, comes on early in life, usually progressing to a fatal termination, and is associated with a cirrhosis of the liver which is not alcoholic in origin. At autopsy degenerations of the nucleus lentiformis have been found. J. Ramsey Hunt in 1916 called attention to the association of both paralysis agitans and Huntington's chorea with lesions in the globus pallidus. Oppenheim has recently differentiated a striatum syndrome to which he gave the name "dystonia musculorum." Difficulties in writing, tremors, disturbance of the gait, rigidities, tonic and clonic movements of the muscles and other neurological symptoms are present. Several cases reported by Abrahamson in 1920 showed definite emotional disturbances. Cecile and Oskar Vogt have recently (1919) studied the striatum lesions from a standpoint of both pathology and symptomatology. As summarized by Lhermitte[4] their work shows that athetosis, ~~paralysis agitans~~, Huntington's chorea, dystonia musculorum, probably paralysis agitans

4. Lhermitte, J.: The Anatomical and Clinical Syndromes of the Corpus Striatum. Translated by J. H. Huddleson and W. M. Kraus. The Neurological Bulletin. May, 1921.

and various other neurological syndromes are to be attributed directly to conditions involving the striate bodies. Prominent among these are softenings and hemorrhages which may result from arteriosclerosis. In view of these facts a careful study of the focal lesions associated with the arteriosclerotic disorders is exceedingly important.

The pathological processes involved have been carefully studied by Heubner and others. He was originally of the opinion that cerebral arteriosclerosis was always of specific origin. Baumgarten, however, subsequently showed that this was not the case. The more characteristic changes in the larger vessels manifest themselves in the form of patches of atheromatous thickening so common at autopsy. As a result of degenerative changes in the elastica and media, and a consequent weakening of the vessel wall, intimal thickening takes place. This is not the circular, uniform, concentric involvement found in syphilitic processes but a localized proliferation of the intima at some one point. There may be an infiltration of colloid and calcareous material in the media. This leads to further intimal thickening. In the smaller vessels arteriocapillary fibrosis has been described—a uniform thickening of the vessel walls with a connective tissue formation. Endarteritis obliterans, first described by Friedländer in 1876, is probably always of syphilitic origin.

In addition to the vascular changes in the cerebral vessels Kraepelin [5] finds usually atheromatous changes in the aorta and its branches, particularly the coronaries, with ulcerations or calcareous plates, hypertrophy and dilatation of the heart, myocarditis, interstitial nephritis and infarctions of various organs. At autopsy the dura and pia are usually thickened and adherent, with a general atrophy of the cerebral convolutions. There are

5. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

often fresh hemorrhages under the membranes as well as cyst formations and dilatation of the brain ventricles. He particularly emphasizes a splitting of the elastica in the larger cerebral vessels with a thickening and tortuosity, fatty infiltration and calcareous deposits. Hyaline degeneration is common in the elastica and muscularis with fatty granular cells in the adventitia. Capillary aneurysms are often found. Glia proliferation is to be expected in the surrounding area. A condition described by Alzheimer as perivascular gliosis often occurs. There is a disappearance of the perivascular nervous elements with consequent proliferation of the neuroglia. In a general way Kraepelin differentiates several distinct pathological groups—a diffuse cortical involvement, circumscribed processes in the neighborhood of vessels, hemorrhages and softenings. There is also a loss of nerve fibres which are replaced by neuroglia. Binswanger has described a "chronic subcortical encephalitis" due to arteriosclerosis. This consists of an atrophy of the white matter due to an involvement of the deeper marrow vessels. Large gaps and lacunae are found in the course of the vessels. There is an extensive atrophy of the fibres and there may be occasional foci of softening. As a general rule involvement of the large vessels is liable to affect the medullary substance while sclerosis of the smaller vessels leads to cortical disturbances. It is also possible to have extensive lesions without mental symptoms and well developed psychoses with only a slight physical basis. The site of the damage to the vessels determines this. On the other hand, the mental condition may be due to cardiovascular complications resulting usually in anxiety psychoses. The symptomatology may be complicated by senility, alcoholism or syphilis.

Clinically Kraepelin[6] divides the arteriosclerotic

6. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

psychoses into deteriorations, or milder forms of mental enfeeblement, dementias, depressions, excitements, late epilepsies, and apoplectic dementia. In the milder forms there is a gradual change in the entire psychic personality, with a later development of more marked changes, either physical, mental or both. The early symptoms are a general reduction of the mental capacity and an impairment of memory. The patient tires easily and loses all evidences of energy, with no inclination to undertake anything new. Familiar names and dates are forgotten. Recent occurrences are particularly lost to memory. The real is confused with the false. In business the patient becomes careless and unreliable, overlooks important transactions and forgets appointments. There are often subjective feelings of impending illness. The mood becomes depressed, whining and tearful. Irritability and outbursts of anger occasionally appear, characterized by a marked emotional instability, varying rapidly from tears to laughter. Suicidal tendencies are sometimes noted. Mild confusional states may be induced by alcoholic indulgences. Early physical symptoms are headache, sensations of fulness and pressure in the head, followed by a feeling of dizziness, fatigue, exhaustion, debility, etc. Sooner or later, following a seizure of some kind, neurological signs appear—drooping of the mouth, lateral deviation of the tongue, weakness of an arm, dragging of one leg, loss of sensation on one side, ankle clonus, an increase, decrease or inequality of the patellar reflexes, and sometimes a Babinski reflex. The pupils are very likely to be unequal and sluggish in reaction. The features present a tired, sleepy expression and speech becomes tremulous and monotonous. There may be a difficulty in finding words, or the misuse of words. There are usually tremors of the fingers and movements are uncertain, the gait being unsteady. Romberg's symptom may be present. Dizzy spells and fainting at-

tacks also occur, sometimes followed by genuine convulsions. Apoplectiform seizures may be observed, with unconsciousness for hours or days. These may be followed by sensory or motor aphasia, unilateral paralysis with or without disturbances of sensation, hemianopsia, alexia, agraphia, asymbolism or apraxia. Cardiac disturbances with anxieties are often complications. These apoplectiform and other severe attacks sometimes occur a long time after mental symptoms have appeared. They are likely to recur, mental deterioration progressing rapidly with the repetition of the seizures.

Apprehension is much disturbed and memory weakened, in the advanced cases of deterioration. The patients cannot remember anything for more than a short time. They become disoriented as to time, place and person and forget their own names. Genuine "confabulation" sometimes appears. There are often confusional and delirious states. The mood is frequently depressed or anxious, sometimes irritable or quarrelsome and at times humorous. There is a group of cases showing genuine depressions, usually with hypochondriacal delusions, sometimes with delusions of persecution, self-accusation, and ideas of sinfulness. Even delusions of grandeur are observed. Hallucinations are not infrequent in these cases. States of excitement may intervene with occasional delusions and confused attacks. These excitements are usually of the agitated, restless type, sometimes with suicidal inclinations. Stuporous or even cataleptic states may follow. In the highest forms of excitement sensory or motor aphasia may develop, often with speech disturbances, sometimes of a genuine scanning type. Paraphasias are common. The writing is ataxic or paragraphic. Ideational or motor apraxia often is a symptom. Cyanoses and other evidences of general arteriosclerotic involvement appear. There may be an albuminuric retinitis.

Albumen and sometimes sugar appear in the urine. The radials and temporals are thickened or hardened and cardiac murmurs are often found. Blood pressure is greatly increased in many instances, although Romberg found it in only ten per cent of his cases. Sleep is usually interfered with to a marked degree.

In a certain number of the more advanced cases of arteriosclerosis late epilepsies appear. The attacks usually begin between the forty-fifth and sixty-fifth years. There may be fainting spells or genuine convulsions recurring at frequent intervals. These may be associated with brief periods of delirium or may even occur without loss of consciousness. Forgetfulness and mental enfeeblement soon appear in such cases. They also show physical changes with tremors, disturbed reflexes, paralyses, increased blood pressure, etc. Alcoholism seems to be a strongly predisposing factor in this form of arteriosclerotic disorder. Kraepelin found that the epileptic attacks almost invariably appeared in cases which showed a previous history of alcoholic excesses.

In nearly half of his cases Kraepelin found apoplectiform attacks appearing without any marked psychosis preceding them. In some instances no mental symptoms appeared for many years. The attacks were, however, immediately followed, usually, by periods of confusion and clouding, sometimes of excitement and violence. The acute disturbance as a rule subsides rather quickly and clears up partially or completely. Usually there remains a memory defect, an increased fatigability and a depressed or irritable mood. These he refers to as cases of apoplectic deterioration or mental enfeeblement. Recurrent apoplectiform seizures may result in excitement, depressions or deliria. Gradual progressive deterioration is the usual picture. As a general rule the cases with marked excitements, depressions and deliria are of short duration and have a bad prognosis.

Kraepelin finds that the arteriosclerotic psychoses appear a decade earlier than the senile psychoses. Less than one per cent developed at the age of forty; 2.7 per cent at forty-five; 3.7 per cent at fifty; 7.4 per cent at fifty-five; twenty-two per cent at sixty; twenty-two per cent at sixty-five; 18.57 per cent at seventy; twelve per cent at seventy-five, etc. In the cases observed at a particularly early age he believes heredity to be a very important factor. Seventy-one and five-tenths per cent of his cases were men. Sixty-two per cent of the men and fifty-three per cent of the women were less than sixty-five years of age. The epileptic and demented forms appear earlier than the apoplectiform variety. Arteriosclerotic involvement of the smaller vessels occurs earlier than that of the larger arteries. Kraepelin found alcoholism more common in the history of his cases than syphilis. He is uncertain whether specific infections can produce a genuine arteriosclerosis or not.

Erb has shown that by the experimental injection of adrenalin into the blood stream artificial arteriosclerosis can be produced, with an increase of blood pressure, splitting of the elastica, thickening of the vessel walls and aneurysm formation. Thoma considers alcohol, tobacco, coffee, tea, and infectious poisons important causes. Cramer found the disease more common in innkeepers, actors, directors, officers, bankers and parliamentarians. Alcohol, syphilis, overwork and high living are important etiological factors. Kraepelin assumes the existence of certain metabolic products in the blood, possibly the result of infections which affect blood pressure and the structure of the vessel walls during a period of lowered resistance.

The pathological changes associated with the arteriosclerotic psychoses are quite clearly demarcated. Clinical differentiations, however, are not so well established. There is some question as to the justification of the sep-

arate entities into which Kraepelin would divide the arteriosclerotic processes. For statistical purposes the Association's committee felt that a determination of the frequency of occurrence of the arteriosclerotic group as a whole is all that should be attempted at this time. The following suggestions were offered in the manual as to the delimitations of these conditions:—

"The clinical symptoms, both mental and physical, are varied depending in the first place on the distribution and severity of the vascular cerebral disease and probably to some extent on the mental make-up of the person.

"Cerebral physical symptoms, headaches, dizziness, fainting attacks, etc., are nearly always present, and usually signs of focal brain disease appear sooner or later (aphasia, paralysis, etc.).

"The most important mental symptoms (particularly if the arteriosclerotic disease is diffuse) are impairment of mental tension, *i.e.*, interference with the capacity to think quickly and accurately, to concentrate and to fix the attention; fatigability and lack of emotional control (alternate weeping and laughing), often a tendency to irritability is marked; the retention is impaired and with it there is more or less general defect of memory, especially in the advanced stages of the disease, or after some large destructive lesion occurs.

"Pronounced psychotic symptoms may appear in the form of depression (often of the anxious type), suspicions or paranoid ideas, or episodes of marked confusion.

"To be included in this group are the psychoses following cerebral softening or hemorrhage, if due to arterial disease. (Autopsies in state hospitals show that in arteriosclerotic cases softening is relatively much more frequent than hemorrhage.)

"Differentiation from senile psychosis is sometimes difficult particularly if the arteriosclerotic disease mani-

fests itself in the senile period. The two conditions may be associated; when this happens preference should be given in the statistical report to the arteriosclerotic disorder.

"High blood pressure, although usually present, is not essential for the diagnosis of cerebral arteriosclerosis."

In the 49,640 admissions to the New York state hospitals during a period of eight years the 2,318 cases diagnosed as psychoses with arteriosclerosis constituted 4.67 per cent of the total number. In twenty-one hospitals in other states there were 18,336 admissions, of which 492, or 2.68 per cent, were cases of arteriosclerosis. On the other hand, the Massachusetts hospitals show 9.63 per cent of their first admissions during 1919 as arteriosclerotic psychoses. There would appear to be no way to harmonize these dissimilar findings unless it is merely a question of differentiation between the senile psychoses and those due to arteriosclerosis. In a total of 70,987 admissions to all institutions, there were 3,100 cases of arteriosclerotic psychoses, a percentage of 4.36. It is worthy of note that in all of the various groups of institutions the percentage of senile and arteriosclerotic cases combined is practically the same. This would strongly suggest varying standards of diagnosis which will undoubtedly be reconciled in time. It is only recently that any great amount of attention has been given to the psychoses due to arteriosclerosis and it must be confessed that there has been entirely too great a tendency to dismiss without further interest as senile psychoses all mental disturbances occurring in persons of advanced years. On the other hand, the custom of basing a diagnosis of arteriosclerotic psychosis on the mere presence of an increased blood pressure without the existence of any of the other symptoms which characterize that condition indicates, if nothing else, the necessity of a greater uniformity in our methods of diagnostic procedure.

CHAPTER IV

GENERAL PARALYSIS

General paralysis of the insane, general paresis, or dementia paralytica, as it is variously known, from the standpoint of etiology, symptomatology and pathology, is unquestionably the most clearly differentiated and sharply circumscribed of the psychoses at this time. Its history, like its pathology, is inseparable from that of syphilis—a subject of never failing interest and importance, from the time of the first appearance of that word in a poem (Syphilidis, sive morbi Gallici) written by the Italian physican and poet Fracastoro in 1530. Guarinoni referred to epilepsies due to syphilis in the seventeenth century. Frequent allusions are made in the literature of that period to manifestations of the disease in the nervous system. Thomas Willis called attention to the association of paralysis with mental disorders as early as 1672. A form of mania due to syphilis was described by Sanché in 1777. Jelliffe found references in literature to a specific leptomeningitis in 1766 and paraplegias in 1771. Haslam, a pharmacist at the Bethlem Hospital, is said to have given a fairly accurate description of general paresis in 1798. A French writer, A. L. Bayle, is usually spoken of as having clearly differentiated the disease in 1822. The work of Calmeil, "De la Paralysie Considérée chez les aliénés," in 1826, was, however, the first elaborate monograph ever written on this important psychosis and established its recognition as an entity. Griesinger looked upon it as a combination of different mental conditions. Esquirol is credited with having been the first to describe the speech defect now

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considered such an important symptom. Baillarger is said to have introduced the term dementia paralytica in 1846.

The etiology of the disease was a subject of controversy for many years. The early writers ascribed it to sexual excesses, masturbation, alcoholism, heredity, overwork, and various other causes. It was looked upon by some as one of the sequelae of syphilis and was described as a "meta syphilitic" disease by Möbius and a "para syphilitic" disorder by Fournier. It was noted by many as occurring only in the more intellectual and highly developed races and was therefore referred to by Krafft-Ebing as a disease of "syphilization and civilization." Both Bayle and Esquirol mentioned syphilis very casually in their writings. Sandras in 1852 spoke of it as one of the principal causes of general paresis. Its etiological importance was, however, first given serious consideration by Esmarch and Jessen, prominent Danish writers, in 1857. Their views were corroborated by Steenberg in 1860 and by Kjellberg in 1863. The theory of an exclusively specific origin was not generally accepted, however, for many years. Rieger published elaborate statistics in 1886 showing that the incidence of general paresis was sixteen or seventeen times as great in syphilitics as it was in healthy persons. The fact that a definite history of infection was not available in many cases led to considerable doubt. Such eminent authorities as Charcot, Binswanger and Déjerine went so far as to deny that there was any relation between the two diseases. That some uncertainty was warranted by the information at hand is shown by the fact that Kraepelin [1] found a history of syphilis in seventy-eight per cent of his cases, while Sprengeler reported 41.5 per cent, Räcke 57.3 per cent, Torkel fifty-one per cent, Marcus seventy-six per cent, Houghberg 86.9 per cent, and Alzheimer over ninety

1. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

per cent. This is not at all surprising in view of the statement made by Kraepelin [2] that Hirschl could find a definite history of an initial lesion in only thirty-six per cent of his cases of tertiary syphilis. Hudovernig found that 42.3 per cent of the women suffering from syphilis did not know when they were infected. In discussing this subject in 1897 Krafft-Ebing reported the inoculation of nine paretics with syphilitic virus without the appearance of luetic symptoms in any instance, although reinfections have been mentioned by other authorities.

One of the first advances which contributed materially to the ultimate solution of the general paresis problem was the study of the cerebrospinal fluid by Widal, Sicard and others after the introduction of lumbar puncture by Quincke in 1890. This led eventually to discoveries which were of great diagnostic importance. The isolation of the spirochaeta pallidum, now known as the treponema pallidum, by Schaudinn in 1905 settled the question for all time as to the cause of syphilis. The adaptation of the principle of complement fixation, the so-called Bordet-Gengou phenomenon, to the study of syphilitic fluids by Wassermann, Neisser and Bruck in 1906 practically removed all doubt as to the relation between that disease and general paresis. The demonstration of the treponema in the cortex of paretics by Moore and Noguchi in 1913 was practically the only other contribution necessary. They have since been found in the cerebrospinal fluid. Notwithstanding the fact that general paresis must now be looked upon as being a manifestation of syphilis beyond all peradventure of a doubt, it is nevertheless true that we are unable to explain why that disease does not always yield to specific treatment. This is undeniably the case at this time. Just why this should be so cannot be explained in the light of our present knowledge. It is, however, presumably for the same rea-

2. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

son that tabes and other diseases of the cord and nervous system, the specific origin of which cannot logically be questioned, are equally resistant to salvarsan and mercury, whatever that reason may be.

As soon as the findings of the Wassermann reaction became evident, renewed efforts on the part of clinicians to find a cure for general paresis naturally followed. One of the first suggested was the Swift-Ellis treatment. This was based on the injection of salvarsanized blood serum into the subdural space of the spinal canal. Results were exceedingly encouraging for a while, but time showed that this was not the solution of the problem. Intravenous salvarsan administration was next tried. This, too, gave excellent results at first. The cases which were apparently cured, however, eventually relapsed sooner or later in almost every instance. The intraspinous use of salvarsan in minute doses has been no more successful than the Swift-Ellis method. Intracranial subdural treatments have been tried and salvarsan has even been injected directly into the lateral ventricles. The logical conclusion is either that the destruction of the nervous tissue has already reached a stage which is beyond repair or that the treatment does not reach the site of the disease.

Clinically we are on much safer ground. In his third edition Krafft-Ebing [3] referred to dementia paralytica as "periencephalomeningitis diffusa," the term originally employed by Calmeil. "Clinically this disease is manifested as a rule as a chronic disease of the brain with vasomotor, psychic, and motor, functional disturbances, progressive in course, with a duration of from two to three years and nearly always a fatal termination."

Régis,[4] before the cause of the disease was definitely

3. Krafft-Ebing, R. v.: Lehrbuch der Psychiatrie. 1888.
4. Régis, E.: A Practical Manual of Mental Medicine. Translated by H. M. Bannister. 1894.

determined, defined general paralysis as a "cerebral disorder, sometimes cerebro-spinal (diffuse chronic interstitial meningo-myelo-encephalitis) essentially characterized by progressive symptoms of dementia and paralysis (paralytic dementia) with which are frequently associated various accessory symptoms, and especially an insanity of the maniacal, melancholic, or circular type (paralytic insanity)."

Since the time the disease was described by Bayle, general paresis has usually been spoken of as being represented clinically by three different stages. White[5] speaks of a prodromal period, one of full development and a terminal stage. In the first period he emphasizes the importance of physical symptoms, more particularly the oculomotor and tendon reflex disturbances. These include the sluggish reaction to light (28.3 per cent) or an actual Argyll-Robertson pupil (45 per cent), with an increased, decreased or absent knee-jerk, the exaggerated form being the most common. The mental symptoms may be entirely overlooked in the first stage. There is a gradual progressive deterioration of the personality, with a loss of efficiency, impairment of memory, and failure of judgment. There may be episodes of excitement, depression or delirium, with or without hallucinations and delusions, the latter being either hypochondriacal or grandiose. "The demented type, without marked delusions or sensory falsifications, is the truly typical variety of the disease and the dementia the basal element of all forms" (White). There may be an incipient speech disorder and beginning tremor.

Characteristic of the second stage is a marked increase of the physical symptoms already described, together with the appearance of seizures. Muscular weakness develops and the patient often shows a marked gain in weight. The mental symptoms are merely an exacer-

5. White, William A.: Outlines of Psychiatry. 1919.

bation of those shown in the first stage. The expansive variety constitutes the classic form so often spoken of. There may be agitations, depressions, alternations of these symptoms or even paranoid forms.

In the third stage there is a continued exaggeration of the physical signs of the disease with an advancing mental deterioration. The patient becomes helpless and practically speechless, contractures and bedsores develop, and death often occurs as the result of an unusually violent seizure. The description of this disease in the three traditional stages so often referred to is practically without significance and of very questionable value. It is, of course, a well-known fact that the disease may progress rapidly to a termination in two or three years or may continue for an almost indefinite period of time. It may manifest itself, furthermore, in various ways. The physical signs show much greater constancy than the mental symptoms.

Kraepelin[6] describes demented, depressed, expansive and agitated forms of general paresis. The "demented" form he finds to be much more common than the others. This is characterized by a progressive mental deterioration with "paralysis." The onset is marked by a poverty of thought, forgetfulness, moodiness, instability and indifference. Consciousness gradually becomes somewhat clouded and the patient more or less disoriented. Transitory delusions supervene. These are of a depressive type, somatic or expansive in nature. The delusional ideas as a general rule are rather childish. Memory disorder becomes conspicuous and delirious excitements occur at times. All of this leads to a gradual deterioration. Speech defects appear sooner or later and conduct disorders are common. Kraepelin finds that fifty-three per cent of his Heidelberg cases were of the demented form. At Munich they constituted fifty-six per cent of

6. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

the men and seventy-three per cent of the women. Forty-four per cent of the cases died within the first two years.

The "depressive" form of paresis as described by Kraepelin is characterized by emotional depression or anxiety with delusions of various kinds. It may begin with a general sensation of illness and a gradual weakness of memory or intellect followed by symptoms of mental dulness. The unpleasant ideas are hypochondriacal in nature and often of an extravagant type. The delusions are quite frequently somatic in origin. Sometimes these are associated with self-accusation or there may be complaints of persecution. Hallucinations occur at times. In spite of this deplorable state of affairs a marked indifference on the part of the patient is the rule. Excitement, violence or suicidal impulses nevertheless occur, and stuporous states are described. Kraepelin found that the depressive form constituted twelve per cent of his cases at Heidelberg. He is of the opinion that the duration is short, much more so than in some of the other types of the disease. Fifty-eight and six-tenths per cent died within the first two years. Convulsions, however, were less frequent.

The "expansive form," according to Kraepelin, may begin with an initial depression or show excitement early. Megalomanic symptoms of the most extravagant variety soon appear. The marked mental weakness is, however, very manifest. Hallucinations of sight and hearing are frequently present but transitory. The mood is usually happy, although hypochondriacal ideas occur for short periods now and then. Excitability is more common, sometimes with unusual violence. The course tends to a complete deterioration, with occasional exacerbations of excitement. Kraepelin found that the expansive form constituted about thirty per cent of his Heidelberg cases. Convulsions were less frequent and remissions more common than in other types. He found that this form of the

disease, moreover, occurred later in life. Forty per cent died within the first two years. Some cases, on the other hand, were of long duration; one of seven, another of eight, and one of fourteen years. He also noted mixed varieties with alternations between excitement and depression.

The "agitated" form as described by Kraepelin is that type in which extreme excitements predominate. It is often of sudden onset. Grandiose ideas, even more extravagant than those of the expansive form, appear. A flight of ideas may be observed at times and stupor often intervenes. The most severe cases are those which have been referred to by some writers as "galloping" paresis. An actual delirium may lead to an early termination in death. The agitated type constituted 6.3 per cent of Kraepelin's cases. He finds this condition somewhat analogous to the delirious states due to alcoholism.

Remissions are more common in the agitated and expansive forms of the disease and may vary in duration from a few months in some instances to one of fourteen years reported by Dobrschansky. Nissl confirmed the diagnosis of paresis at autopsy in a case observed by Tuczek which had been stationary for nearly twenty years. Alzheimer reported another with a known duration of thirty-two years. Kraepelin has found, however, that fifty per cent of his paretics die within the first two years. He reports unequal pupils in from fifty to sixty per cent of those examined. He also finds that pupillary irregularity is one of the earliest physical signs in many individuals. Complete loss of light reaction was found in from fifty to sixty per cent of all cases, with a reduced range of reaction in from thirty to forty per cent. He found epileptiform or other attacks present in from thirty to forty per cent of those studied. Decreased or absent patellar reflexes were noted about twice as often as were increased reflexes. In from two-thirds to three-

fourths of all cases he found both the posterior column and lateral tracts of the cord involved.

The characteristic physical signs noted in all textbooks are described in detail by Kraepelin [7] as common to all of the clinical forms of the disease. The inequality, irregularity and immobility of the pupils, the speech defect, difficulty in writing, tremor of the lips, facial muscles and tongue, the marked changes in both superficial and deep reflexes, the alterations in the gait, the muscular incoordination, the presence of the Babinski reflex or ankle clonus, the sensory, motor, vasomotor and trophic disturbances constitute a combination of physical signs which is to be found practically nowhere else within the domain of psychiatry. The seizures, either epileptiform, apoplectiform or resembling syncopes, are almost pathognomonic when taken into consideration with the physical signs alone.

The pressure of the cerebrospinal fluid is from three to five times as great as in normal individuals. The albumen content of the fluid is increased about six times (Kraepelin). The increase in the globulin content has been very frequently referred to in the literature of general paresis. Kraepelin states that it also occurs in tabes, syphilis, brain abscess, occasional cases of extra medullary tumors, multiple sclerosis and in some infectious diseases. He attaches a great deal of importance to the increase in the cellular elements of the spinal fluid. "Cases with repeated normal findings are so rare that the correctness of the diagnosis may be justly doubted." The Wassermann findings no longer require comment. The colloidal gold test of Lange is equally well known. Nowhere else in psychiatric procedure does the laboratory render such valuable diagnostic assistance as is the rule in cases of general paresis. A positive Wassermann reaction in the spinal fluid, the presence of an increase

7. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

in the albumen and globulin content, with a marked lymphocytosis in the cerebrospinal fluid and a positive gold test, is quite sufficient evidence on which to base a definite diagnosis. The results of an examination of the spinal fluid for diagnostic purposes at the time of autopsy are highly unreliable. An increase in the cell count, which may be misleading, is found in the spinal fluid of non-paretics in all cases after death. The number of cells depends entirely on the time of examination. It is not at all unusual to find from one to three hundred per cubic millimeter when a count is made from twenty-four to forty-eight hours after the death of the patient.[8] Another interesting fact is that the presence of sugar always shown by Fehling's solution during life cannot be demonstrated postmortem, at least after the lapse of a few hours.[9] The significance of this change is not clear. Nor is the increase in the globulin content of the spinal fluid, when taken alone, pathognomonic of either general paresis or syphilis, as was pointed out in 1909.[10] One of the most elaborate studies ever made of the spinal fluid, that of F. W. Mott, shows that this increase is due to degenerative processes of the nervous system which may be due to a variety of causes.[11]

In no other psychosis do we find such clear-cut pathological findings at autopsy as are readily demonstrable in general paresis. We are very largely indebted to the exhaustive researches of Nissl and Alzheimer, (1904) [12] for our information on this subject. Macroscopically

8. May, James V.: A Résumé of the Work of the Pathological Laboratory of the Binghamton State Hospital. July 1, 1911.

9. Ibid.

10. May, James V.: A Review of the Recent Studies of General Paresis. American Journal of Insanity. April, 1910.

11. Mott, F. W.: Oliver-Sharpey Lectures on the Cerebro-Spinal Fluid. Lancet, July 2 and 10, 1910.

12. Alzheimer, Alois: Histologische Studien zur Differentialdiagnose des Progres s. Paralyse. Hist. und Histopath. Arbeiten. 1904.

adhesions of the dura to the calvarium and of the pia to the cortical substance are quite common. Opacities of the meninges are practically always present. Pachymeningitis hemorrhagica, externa or interna, is common, often with the formation of extensive hemorrhagic membranes. Ependymitis may be readily observed in the floor of the fourth and lateral ventricles. There is usually a reduction in the general brain weight, with atrophy of various parts, usually one side or the other of the cerebrum. The sulci are widened and the frontal lobes are often noticeably smaller in size. Less frequently the temporal, parietal or occipital regions are affected. Often there are localized foci of atrophy with cyst formation. The ventricles are frequently widely dilated, with an increase of cerebrospinal fluid.

Microscopic examination always shows a more or less diffuse leptomeningitis with a markedly thickened pia infiltrated with lymphocytes and plasma cells. In the superficial layers of the cortex there is a neuroglia proliferation with characteristic "spider cells." There is an obvious disturbance of the normal layering of the cortex which is very striking. The adventitia of the vascular walls shows an extensive infiltration by lymphocytes and particularly by plasma cells which are often very numerous. Rod cells or "stäbchenzellen" as described by Alzheimer are very noticeable as are also satellite cells or free nuclei. The neurones are often diminished in number and frequently show the "acute" or "grave" alterations described by Nissl, as well as shrinkage, sclerosis, pigmentary deposits, vacuolization, etc. The characteristic axonal alteration originally described by Turner as occurring in central neuritis is sometimes observed. Degeneration of the nerve fibres may be brought out by proper staining processes. Intimal thickening of the vessel walls and a capillary proliferation or budding should also be mentioned. Foci of softening

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sometimes are to be found in the cortex. The presence of occasional gummata is now conceded, although formerly denied by Alzheimer. The changes in the cerebellum are not essentially different, but are usually not so conspicuous. In the cord a pachymeningitis and leptomeningitis are usually present, as well as the vascular changes described above. The important findings, however, are the degeneration of the posterior columns and lateral tracts, or mixed forms involving both of these. Owing doubtless to defects in staining technique, the demonstration of the treponema is difficult and unsatisfactory. It must be admitted that some of the above histopathological changes in themselves, the cell alterations, for instance, do not, when considered alone, prove the existence of general paresis. The whole picture as shown by the microscope, however, leaves no room for argument. The postmortem diagnosis is absolutely conclusive.

A consideration of the subject of general paresis without some reference to the juvenile form, first described by Clouston in 1877, would be manifestly incomplete. Although this term may be applied to a type of the disease acquired in childhood, it is usually used as referring to hereditary syphilis. Symptoms generally appear at or before the age of puberty. As a general rule the child is more or less defective mentally from birth, although this is not always true. Ordinarily the course of the disease is one of progressive deterioration, with an occasional episode of excitement. Convulsive seizures are frequent, and contractures are often noted. These cases are likely to be mistaken for idiocy and overlooked. The duration usually extends over a period of several years. The pathology is practically the same as that of the adult form of the disease. Almost invariably a positive Wassermann is obtained on examining the blood of the parents. It is equally interesting to note

that the children of syphilitic parents often show a positive Wassermann reaction without any evidence of paresis, or at least for some time before it develops.

The only question remaining at this time is whether general paresis and cerebral syphilis are separate and distinct disease entities. For many years this was held to be the case. Certainly gummata and other syphilitic processes are to be found in the brain where there is no such pathological picture as characterizes general paresis. In any event the latter must be recognized as a very well defined form of syphilis of the nervous system. In view of the very definite etiology, symptomatology and pathology of general paresis, the various clinical differentiations of Kraepelin and other writers are looked upon by many as not being of very great importance. In any and all clinical types, however described, we are unquestionably dealing with the same sharply circumscribed disease process. This subject is one of academic interest only.

The American Psychiatric Association in its classification of psychoses made no attempt to differentiate types. For purposes of statistical study the following suggestions appear in the manual:—

"The range of symptoms encountered in general paralysis is too great to be reviewed here in detail. As to mental symptoms, most stress should be laid on the early changes in disposition and character, judgment defects, difficulty about time relations and discrepancies in statements, forgetfulness and later on a diffuse memory impairment. Cases with marked grandiose trends are less likely to be overlooked than cases with depressions, paranoid ideas, alcoholic-like episodes, etc.

"Mistakes of diagnosis are most apt to be made in those cases having in the early stages pronounced psychotic symptoms and relatively slight defect symptoms, or in cases with few definite physical signs. Lumbar

puncture should always be made if there is any doubt about the diagnosis. A Wassermann examination of the blood alone is not sufficient as this does not tell us whether or not the central nervous system is involved."

A study of the statistics of the thirteen New York state hospitals in the "pre-Wassermann" days and before we had acquired our present accurate knowledge of the pathology of general paresis shows that there were 84,152 admissions during the fourteen years ending on October 1, 1888. Of this number 5,697, or 6.76 per cent, were diagnosed as general paresis. In the same hospitals, from 1912 to 1919 inclusive, 6,374 cases of general paresis were reported,—12.71 per cent of the 49,640 first admissions. During the years 1918 and 1919 that disease constituted 13.19 per cent of all admissions. This apparent increase undoubtedly is due to the fact that modern methods have materially improved facilities for accuracy of diagnosis. It is not at all probable that the admission rate has doubled during the period in question for any other reason. In the Massachusetts hospitals during the year 1919, only 7.90 per cent of the first admissions were diagnosed as general paresis. There was, however, an unusually high rate of cerebral syphilis. In twenty-one hospitals in fourteen other states, reports based on the present classification show a total of 18,336 admissions, mostly in 1917, 1918 and 1919. Of this number 1,233, or 6.72 per cent, were cases of general paresis. Thus, in a total of 70,987 admissions based on the present classification of psychoses as used by the American Psychiatric Association there were 7,845 cases of general paresis in all,—a percentage of 11.05. It is, of course, a well-known fact that general paresis is largely a psychosis of densely populated communities. This is readily shown by the New York statistics. During the year 1919, 9.6 per cent of the admissions at Binghamton were cases of general paresis. The percentage at Buffalo was 15.5; at Gowanda, 17.3; Hudson River (Poughkeepsie), 9.0; at Mid-

dletown, 3.7; Rochester, 8.6; St. Lawrence (Ogdensburg), 9.2; Utica, 10.1; and Willard, 13. In the institutions caring for the insane of New York City 16.3 per cent were reported at the Manhattan State Hospital, 13.5 per cent at Kings Park, and 14.7 per cent at Central Islip. The percentage at the other institutions, except at Buffalo and Gowanda, which care almost entirely for residents of the city of Buffalo, is determined very largely by the transfer of patients from the hospitals of New York City and the metropolitan district. General paresis constitutes approximately ten per cent of the commitments in the city of Boston. On the other hand, we find an admission rate of 2.3 per cent for the Vermont State Hospital (1917 and 1918), 1.5 per cent for the Central State Hospital, Virginia (1919), 2.5 per cent for the Columbia State Hospital (South Carolina) (1918), and a period of two years at the Spencer State Hospital, West Virginia (1917 and 1918) with 262 admissions and no cases of general paresis. Of 2,895 first admissions reported by the Ohio state hospitals for the year ending June 30, 1920, 438, or 15.12 per cent, were cases of general paresis. It is interesting, at least, to note that Letelier [13] showed an admission rate for this disease of seven per cent at the Casa de Orates at Santiago, Chili.

13. Movimiento de la Casa de Orates de Santiago, 1920.

CHAPTER V

THE PSYCHOSES WITH CEREBRAL SYPHILIS

The indications are at the present time that the psychiatry of the future will not deal with a consideration of general paralysis and cerebral syphilis, as such, but will differentiate preferably between parenchymatous and interstitial, or mesoblastic, syphilitic processes of the nervous system. The retention of the designation general paresis is little, if anything, more than a concession to the claims of tradition. Cerebral syphilis may be said in a general way at this time to include all syphilitic involvements of the brain other than general paresis, which must be accorded the precedence due to priority of recognition if nothing else. In the light of our present knowledge we may speak in rather definite terms in considering cerebral syphilis from the standpoint of pathology. On an anatomical basis it is usually divided into three forms,—the meningitic, the endarteritic and the gummatous types. It is, of course, not to be understood that these represent separate and distinct processes. Combined forms are nearly always to be expected and the different types practically always coexist more or less.

The onset of the disease may be expected anywhere from one to ten or even fifteen years from the date of the initial lesion. The early appearance of cerebral symptoms would indicate brain syphilis as a general rule rather than general paresis. Oppenheim[1] in his second edition says that cerebral syphilis often develops within

1. Oppenheim, H.: Diseases of the Nervous System. Translated by Edward E. Mayer. 1900.

a year after infection, a majority of the cases being noted within two years. He finds it a very rare occurrence after ten years. "Because," as Barker [2] puts it, "of the lawlessness of the occurrence of syphilitic lesions in the central nervous system, all clinical classifications of these cases are based only on the predominance of certain associations of lesions." Certainly the pathology of the disease is quite varied in its manifestations.

The meningeal form is the one most often encountered. This may appear on the convexity or on the base of the brain and is spoken of as being either localized or diffuse in character. It may or may not be associated with gummatous formations or cortical vascular involvement. The essential process is a leptomeningitis. The pia is thickened, opaque and adherent to the cortex. The microscope shows the presence of inflammatory elements consisting largely of lymphocytes and plasma cells which may be confined entirely to the meninges or may extend downward to the superficial cortical layers directly or by extension along the adventitial sheaths of the vessels. An examination of the cortex, however, shows a limitation of this invasion to the immediate neighborhood of the meninges. The cortical involvement, in other words, is entirely secondary and is not the important part of the pathological picture that it always is in general paresis. The meningeal condition is practically the same in the two diseases but more likely to be localized in syphilitic processes. Dunlap [3] calls attention to the important fact that in a group of cases occurring many years after infection he found involvements of the deeper cortical layers strongly suggesting general paresis pathologically and impossible of differentiation clinically. In these cases, even in the deep cortical vessel walls, occa-

2. Barker, Lewellys F.: Monographic Medicine. Vol. 4, 1916.
3. Dunlap, Charles B.: Anatomical Borderline between the So-called Syphilitic and Metasyphilitic Disorders in the Brain and Spinal Cord. American Journal of Insanity, April, 1913.

sional lymphoid and plasma cells were found, as well as typical syphilitic endarteritis in some instances. There is frequently, in addition to the simple meningeal involvement at the base, a widespread gummatous infiltration of the pia-arachnoid or in some instances numerous miliary granulomas. This is especially common in the region of the chiasm and may involve the origin of various cranial nerves, obviously in such cases determining the symptomatology to be expected. The optic and oculomotor nerves particularly are affected. The large vessels at the base are often involved either by syphilitic inflammatory processes or by direct invasion of their walls by gummas. An extensive specific meningo-encephalitis may lead either to foci or extensive areas of actual softening.

The endarteritis which occurs in syphilis is characteristic and diagnostic. This has been studied exhaustively by Heubner. The smaller vessels show an infiltration of lymphoid and plasma cells in their adventitia, as well as in the perivascular lymph spaces. The larger vessels show a great thickening of the intima which is consecutive, or, as Lambert described it, "girdling" in character. This is associated with a splitting of the membrana elastica. The proliferated intimal tissue is very susceptible to degenerative processes. Thrombosis and the formation of anemic infarctions may follow the obliteration of the vascular channels. The involvement of the larger vessels may lead to very distinctive focal symptoms. Thus, as Barker[4] has pointed out, there may be an obliterating process in the middle cerebral with hemiplegia and aphasia, invasion of the basilar artery with pontile or bulbar symptoms, or an involvement of the posterior cerebral may lead to hemianesthesia or hemianopsia, while an affection of the vertebral may show a unilateral bulbar paralysis with hemianesthesia

4. Barker, Lewellys F.: Monographic Medicine. Vol. 4, 1916.

of the same side and a hemiplegia of the opposite side. The extensive involvements of the base are usually meningeal, with gumma formation and with a secondary endarteritis in addition. Large solitary gummata may, moreover, occur practically anywhere in the brain, although they are somewhat unusual. On microscopical examination they show a characteristic infiltration of the periphery and a caseous center. They are more likely to occur in the course of a large vessel.

The symptomatology of brain syphilis necessarily varies with the nature, extent and location of the lesion. In the earlier stages of a diffuse meningitis the prominent symptoms to be expected first are headache and dizziness. In an individual with a definite specific history a persistence of such symptoms should suggest salvarsan therapy. Vomiting is a common complication. Cranial nerve palsies, optic neuritis or hemiplegia in such a case would, of course, be conclusive. Stuporous, confused or delirious states may occur, with or without hallucinations. When the syphilitic process is an extensive one with a widespread meningitis or gummatous involvement of the base, numerous focal symptoms are to be expected. Choked disc, optic tract lesions, paralysis of the ocular muscles, facial neuralgias, facial palsies, deafness, or anesthesias may occur. Mental deterioration naturally advances with the progress of the disease, but the personality is much better preserved than in general paresis. Periods of unconsciousness are not infrequent and convulsive attacks may appear. These may be general or local and paralyses often follow. These may assume the form of a hemiplegia or may involve only certain groups of muscles. Ptosis is often noted. Paralysis of other eye muscles is common, and pupillary rigidity is sometimes a symptom. Hemianopsia and diplopia are often observed. An important feature of the disease is the fact that these conditions are more or less transitory and rarely become

permanent. Apoplectiform attacks followed by hemiplegia are results of gummatous growth or may be associated with areas of softening. These are due to vascular disturbances. Aphasia is not an unusual occurrence. Hemiplegias appearing suddenly in individuals under forty years of age are likely to be of specific origin. Epilepsies developing in later years should always be viewed with suspicion. The Korsakow symptom complex has been found in some cases of brain syphilis. Memory defect is present in most instances. When a marked mental deterioration takes place it is usually late in the disease. Argyll-Robertson pupils are infrequent in cerebral syphilis. Speech defect is practically never so conspicuous as it is in general paresis. Writing difficulties are also much less marked. Euphoria and grandiose delusions occasionally occur in brain syphilis but much less frequently than in general paresis. Hemiplegias, when they occur, are much more likely to be permanent than they are in general paresis. Paranoid complexes are sometimes clinical features of the disease and if they persist strongly suggest syphilis rather than paresis.

There should be a positive Wassermann reaction in the blood serum of both diseases. It is more persistent, however, in the syphilitic form. In the spinal fluid the reverse is the case and negative results are often noted in cerebral syphilis. There is usually some increase sooner or later in the albumen and globulin content in both diseases. There may be a lymphocytosis in both, although usually much greater in general paresis. A typical colloidal gold reaction is more indicative of general paresis than syphilitic conditions. Several clinical groupings have been proposed. Plaut, for instance, speaks of various forms of mental deterioration, pseudoparesis, paranoid types, epileptiform varieties, symptomatic disturbances and affective reactions suggesting manic-depressive insanity. The important contribution

made by Kraepelin [5] to the literature of this subject is worthy of careful study. He describes a syphilitic neurasthenia, a mental disturbance due to the psychic effect of the disease, and various conditions resulting from gummatous growths. His most important group is a syphilitic pseudo-paralysis, which he divides into a simple dementia, delirious forms, expansive types and a variety showing the characteristic Korsakow syndrome. He also speaks of syphilitic apoplexies and epilepsy, tabetic psychoses and syphilitic paranoid conditions.

Syphilitic neurasthenia as described by Kraepelin is an affection which is likely to occur early in the disease and manifest itself shortly after the initial infection. In the milder forms, evidences of nervousness appear,—difficulty of thought, irritability, disturbances of sleep, pressure in the head, with indefinite and changeable abnormal sensations and vague pains. Later, feelings of anxiety, depression, dizziness, mental dulness, a difficulty in finding words, transient weaknesses, disturbances of sensation, nausea and a slight rise of temperature are observed. He admits that there is some question as to whether this constitutes a clinical entity and if so, whether it is directly due to the infectious process or is to be attributed to psychic disturbances. Nervous reactions of various kinds are to be found in syphilitics without psychosis. Thus, Meyer in sixty-one cases of secondary syphilis found eighteen with sluggish pupils, thirty-two with increased reflexes, and twelve with general nervous manifestations such as headache, vertigo, etc., appearing shortly after the period of infection. In only five of these patients were there any evidences of an organic disease. In twelve tertiary cases he found indications of an involvement of the nervous system in only two. In thirty examinations following lumbar puncture a lymphocytosis and an abnormal protein content were

5. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

observed. Buttino, in a study of thirty syphilitics, reported that fourteen showed a diminished light reaction within one year of the time of infection. Later, after unmistakable symptoms of cortical involvement have existed for some time, neurasthenic complexes are common. These take the form of a difficulty of thought, absentmindedness, forgetfulness, and a reduction of interests. The mood may be irritable, surly, depressed, anxious, fearful, and changeable, showing at the same time considerable indifference and dulness. Some are quiet and reserved while others are excited and violent. Severe headaches may be common, more often at night. There are also occasional attacks of dizziness or fainting, disturbances of sensation, sleeplessness, sensitiveness to alcohol, and occasional diplopia. These are preliminary to more severe disturbances, which simulate nervous exhaustion, and are not strikingly unlike the earlier stages of general paresis. They may be differentiated by examination of the spinal fluid.

Another group of cases is characterized by conditions due to an increased intracranial pressure. These are marked by thoughtlessness, dulness, and indifference terminating in a complete lethargy and somnolence, during which the patient occasionally demonstrates that he is not so badly damaged mentally as he appears. Physically there may be weakness, twitchings, fainting spells, convulsions, ataxias, paralyses, dysesthesias, choked disc, etc. The basis of this disturbance is a gummatous growth, its location, of course, largely determinating the symptoms. Kraepelin suggests the possibility of getting this disease picture in a syphilitic as the result of a growth of some other kind—a glioma or endothelioma.

Slightly more than a third of the cases encountered in his clinic showed the symptom-complex which he describes as syphilitic pseudo-paresis. As a rule these cases are of the simple demented type with a general mental

deterioration. The patients show some disturbance of apprehension and attention, tire easily and are quite forgetful and dull. Delirious states may supervene, with clouding, confusion and disorientation, as well as hallucinations of sight and hearing. Memory is markedly impaired and confabulation may be noted. Judgment is not so much interfered with as in paresis. The patients have some insight into their condition and complain of headache, difficulty of thought, etc. Occasional delusions are observed. These may be of a hypochondriacal type or grandiose in character. As a rule the mood is cheerful, but it may be depressed, anxious or fearful, with suicidal tendencies. Sleep is disturbed and there is considerable restlessness, usually at night. With all of these symptoms there are the physical signs of a severe cortical involvement, dizziness, fainting spells, twitchings, seizures or frank convulsions, occasional paralyses, etc. Disturbance of sensation and motion may appear with a perfectly clear consciousness at times. Aphasic symptoms are not uncommon. The eye muscles are affected in many cases, with ptosis, double vision, strabismus, etc. The pupils are usually immobile or sluggish, frequently only one being involved. The field of vision is narrowed and choked disc is common. Speech is affected, as well as writing. All kinds of paralyses occur and they persist for some time. The gait may be spastic or ataxic. The reflexes are usually increased and often different on the two sides. Romberg's sign often appears. A Babinski reflex and ankle clonus may be found. The patients are usually untidy in their habits. Blood pressure is increased in some cases and the pulse slow. There may be variations in temperature. Often there are evidences of old syphilitic processes on the skin surface, enlarged glands, residuals of choroiditis, etc. Usually Kraepelin found a positive Wassermann reaction in the blood, but not in the spinal fluid, which showed a slight

cell increase, often from fifteen to twenty per cubic millimeter, rarely in larger numbers. He found the course of the disease rapid, but with occasional remissions. There may be a sudden collapse and death. It usually terminates, however, in a profound dementia, often with a hemiplegia and epileptiform seizures. There are other conditions suggesting general paresis. Marcus, for instance, has described a delirious, confusional state occurring usually in the first year after the infection, sometimes later, but as a rule developing suddenly. The patients become sleepless, confused, anxious and disoriented. Numerous hallucinations appear, both of hearing and vision, usually of a very unpleasant type. The patients often become excited and violent or even suicidal. Physical signs more or less similar to those already described are to be expected. According to Marcus, these cases always respond to syphilitic treatment.

A small group of cases, as pointed out by Westphal, shows excitements strongly simulating the expansive type of general paresis. This form begins ordinarily with a depression, sometimes appearing suddenly, followed by irritability, marked restless excitement, headache, and fainting attacks. Usually there are hallucinations, and delusional ideas of a grandiose type. Above all there are pupillary disturbances, increased or decreased reflexes, seizures, paralyses, etc., strongly resembling paresis. All of these symptoms may disappear under syphilitic treatment in time. Some cases, however, last for years, dying as a rule in a seizure. Kraepelin also describes at some length a group showing the Korsakow complex. He suggests that the fact that this condition usually develops in alcoholics is not without significance.

Kraepelin is of the opinion that the mental picture is the conspicuous and characteristic feature of general

paresis standing out more prominently than the physical evidences of the disease. In syphilitic pseudo-paresis, on the other hand, there is a clearer sensorium without such marked disorientation, and memory is not usually so much affected. At the same time, the physical signs are relatively more prominent, although the speech difficulty and writing defects may not be so marked. The pupils sometimes show no changes. Hemiplegias with ankle clonus and a Babinski reflex are, however, disproportionately common. The eye muscles are much more often involved than they are in general paresis. Loss of pain sense is not so noticeable. An advanced form of deterioration of many years standing is against a diagnosis of paresis and favors cerebral syphilis. In these cases the physical signs drop somewhat into the background. There are, nevertheless, stationary cases of general paresis which can be differentiated with great difficulty if at all. The development of pseudo-paresis is slower and more irregular. After a seizure and a paralysis there may be a long remission. The disease, furthermore, does not, like general paresis, always terminate in death.

Kraepelin finds the apoplectiform type of brain syphilis very common. After a few premonitory symptoms such as headache, dizziness, irritability, weakness of memory, etc., a typical apoplexy takes place, leaving a hemiplegia with or without a speech defect. This sometimes occurs without any loss of consciousness. The patient presents the appearance of an ordinary hemiplegic with increased reflexes on one side and ankle clonus followed by a Babinski reflex, etc. Writing is usually affected as well as speech. There may not be another attack for some years. There is, however, a progressive mental deterioration. Occasional confusional states or excitements may be met with. In the meanwhile, numerous physical signs appear, pupillary

changes, disturbances of the reflexes, ptosis, tremors, hemianopsia, etc. Epileptiform attacks may occur. The blood pressure is usually quite high. There is an increase in the cells in the spinal fluid, often with a negative Wassermann, although the blood serum is positive. Death usually results from a seizure. Three-fourths of Kraepelin's cases developed before the age of forty-five, which, of course, assists materially in the diagnosis.

In younger individuals usually, cerebral syphilis may manifest itself in the form of an epilepsy. Kraepelin is of the opinion that these conditions usually result from endarteritic involvements. In their development they show nothing differing in any way from an ordinary epilepsy. The attacks are usually mild at first, gradually increasing in severity, and are much aggravated by alcohol. There are, however, the usual physical signs of brain lues and later speech defects appear. There is eventually an emotional and intellectual deterioration. The changes in the spinal fluid are those described as characteristic of the other form of syphilis.

Kraepelin describes the paranoid forms as very uncertain in type and not so well defined. Hallucinations and delusions play the principal part with physical disturbances in the background. They become more or less prominent, however, eventually. The patient is usually anxious, restless, suspicious and develops delusions with characteristic ideas of jealousy on a sexual basis. Full-fledged persecutory trends also appear, usually with numerous hallucinations. Occasionally delusions of sin and self-accusation are noted, although ideas of grandeur mixed with complaints of persecution are more common. Consciousness remains undisturbed as a rule and there is no disorientation. The mood is changeable, at times depressed, tearful, anxious, irritable, complaining, but often cheerful and self-satisfied. There is usually more or less emotional dulness, with an indifference to the sur-

roundings. The emotional life is shallow and superficial. Sudden excitements may occur at times with outbursts of anger. There are usually no striking conduct disorders. There may be occasional seizures of a mild form, fainting attacks, dizziness, rarely epileptiform attacks or slight apoplectiform symptoms. Sooner or later the physical signs of brain syphilis develop. The course of the disease is slow. Similar pictures are noted in tabes. The therapeutic test is not to be relied upon too strongly in making a diagnosis or differentiating between paresis and syphilis. It must be remembered that after all we are dealing here with one disease process. It has been found that in many syphilitics, even in recent cases, a positive Wassermann reaction, an increase in the cell count or in the protein content may occasionally be demonstrated in the spinal fluid.

In a study of 428 cases of neurosyphilis treated in Boston, Raeder [6] reported that 129, or practically thirty per cent, showed definite improvement, both physical and mental. He did not make any extravagant claims as to final results to be expected. "The therapia praesens of neurosyphilis is but a transition state in rational syphilography. Medical science has discovered several good clues which must be followed up; and others ferreted out and run down before the solution of the problem is complete. Indeed the successful treatment of paresis and tabes, as well as general vascular syphilis and visceral tertiaries, such as the crippling cradiopathia, etc., may ultimately be realized in the field of preventive medicine. With chemotherapy, however, Ehrlich has doubtless found the most vulnerable approach to the treponemiatic diseases, but further research is necessary and other combinations must be found before the life of this anthropophagus pest is successfully snuffed out."

6. Raeder, Oscar J.: Interim Report of the Neurosyphilis Investigation of the Massachusetts Commission on Mental Diseases. Transactions of the American Medico-Psychological Association, 1919.

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Warthin[7] at autopsy found evidences of active syphilis in a series of forty-one inactive or "cured" cases investigated by him. Eleven of these had been treated, were supposed to have recovered and showed no syphilitic manifestations at the time of death. Five had received an extended course of salvarsan therapy and in twenty-five there was no history of syphilis at all. Spirochaetes were demonstrated by the Levaditi method in thirty-six of the forty-one cases—in the aorta in thirty-two, in the testes in thirty-one, in the liver in four, in the adrenals in six, in the pancreas in six, in the spleen in one and in the nervous system in five. In some of these cases the Wassermann reaction was reported as negative. Warthin concluded that cured syphilis in many if not all instances is in a latent condition, spirochaetes of a low virulence still remaining active.

For purposes of statistical study the American Psychiatric Association has not attempted any clinical differentiation of the various types of this disease, a procedure which was felt to be inadvisable at this time. The following suggestions appear in the manual as to the classification of psychoses due to cerebral syphilis:—

"Since general paralysis itself is now known to be a parenchymatous form of brain syphilis, the differentiation of the cerebral syphilis cases might on theoretical grounds be regarded as less important than formerly. Practically, however, the separation of the non-parenchymatous forms is very important because the symptoms, the course and therapeutic outlook in most of these cases are different from those of general paralysis.

"According to the predominant pathological characteristics, three types of cerebral syphilis may be distinguished, viz.: (a) Meningitic, (b) Endarteritic, and

7. Warthin, Alfred S.: The Persistence of Active Lesions in the Tissue of Clinically Inactive or "Cured" Syphilis. American Journal of Medical Sciences. October, 1916.

(c) Gummatous. The lines of demarcation between these types are not, however, sharp ones. We practically always find in the endarteritic and gummatous types a certain amount of meningitis.

"The acute meningitic form is the most frequent type of cerebral syphilis and gives little trouble in diagnosis; many of these cases do not reach state hospitals. In most cases after prodromal symptoms (headache, dizziness, etc.) there is a rapid development of physical signs, usually cranial nerve involvement, and a mental picture of dulness or confusion with few psychotic symptoms except those related to a delirious or organic reaction.

"In the rarer chronic meningitic forms which are apt to occur a long time after the syphilitic infection, usually in the period in which we might expect general paralysis, the diagnostic difficulties may be considerable.

"In the endarteritic forms the most characteristic symptoms are those resulting from focal vascular lesions.

"In the gummatous forms the slowly developing focal and pressure symptoms are most significant.

"In all forms of cerebral syphilis the psychotic manifestations are less prominent than in general paralysis and the personality is much better preserved as shown by the social reactions, ethical sense, judgment and general behavior. The grandiose ideas and absurd trends of the general paralytic are rarely encountered in these cases."

It is only of comparatively late years that the hospitals of this country have shown the frequency of psychoses due to cerebral syphilis in their reports. Statistical studies indicate that such mental conditions are quite unusual as compared with other well recognized clinical entities. In a total of 49,640 first admissions reported by the New York state hospitals during a period of eight years only 342, or .67 per cent, were reported as mental diseases due to cerebral syphilis. The Massachusetts hospitals during 1919 reported only twenty-seven cases, a

percentage of .89. Twenty-one hospitals in fourteen other states, in a total of 18,336 admissions, showed only 124 cases (.67 per cent) of cerebral syphilis. This represents, therefore, a total of 70,987 admissions with only 493 diagnosed as psychoses due to cerebral syphilis,—a percentage of .69. When this is compared with eleven per cent as shown by the admissions for general paresis it is probably a very fair index of the comparative frequency of the two diseases in our institutions. It is interesting to note that the incidence of cerebral syphilis as shown by the hospitals of the various states is almost exactly the same. The admission rate for the Casa de Orates in Santiago, Chili, in 1918, as shown by Letelier, was .90 per cent.

CHAPTER VI

THE PSYCHOSES WITH HUNTINGTON'S CHOREA, BRAIN TUMOR AND OTHER BRAIN OR NERVOUS DISEASES

Huntington's chorea is said to have been referred to first by C. O. Waters of Franklin, N. Y., in Dunglison's "Practice of Medicine" in 1842. An article on the subject by Irving W. Lyon also appeared in the *American Medical Times* in 1863. The name by which the disease is now generally known was the result of an elaborate description of its symptomatology by George Huntington in the *Medical and Surgical Reporter* in 1872. He particularly called attention to the fact that it is hereditary in origin, occurs in adult life, is associated with suicidal tendencies and often exhibits mental symptoms. On the important subject of heredity Huntington made the following observation: "If one or both of the parents have shown manifestations of the disease, and more especially when these manifestations have been of a serious nature, one or more of the offspring almost invariably suffer from the disease if they live to adult life; and if by any chance these children get through life without it, the thread is broken and the grandchildren or great grandchildren may rest assured that they are free from the disease. Unstable and whimsical as the disease may be in other respects, in this it is firm; it never skips a generation to manifest itself in another; as soon as it has yielded its claims, it never regains them." A well known monograph on the subject by Osler appeared in 1894.

McCarthy[1] refers to the mental condition associ-

1. McCarthy, Daniel J.: Paralysis Agitans, Chorea, etc. Modern Medicine, Osler and McCrae. 1915.

ated with this disease as "a severe and gradually progressive deterioration, ultimately ending in absolute dementia. In some cases the mental defect is noted from the onset of the symptoms, in others the mentality may remain unimpaired for years. Mental deterioration is the rule, and it is associated with a loss of memory and a tendency to self-destruction which gradually develops. When the mental degeneration is well marked, outbreaks of violence are sometimes noted. In one of the writer's patients, as the disease progressed, the clinical picture of paresis was presented. The chronic delusional state is more often noted than would be inferred from Huntington's description." Hamilton,[2] who made a clinical study of a considerable series of cases in 1907, expressed the opinion that mental deterioration occurs in the majority of instances before the onset of choreiform symptoms. He found a special tendency to deterioration in the cases appearing early in life, while irritability and delusional ideas were more often observed in those developing in later years. Delusions of persecution and deterioration, however, were symptoms more or less common to both groups. Diefendorf,[3] in a study of twenty-eight cases in 1908, called attention particularly to the irritability with occasional outbursts of violence as well as attacks of despondency. He emphasizes emotional deterioration and indifference.

Kraepelin[4] also refers to the fact that the mental symptoms may precede the choreiform manifestations in appearance, sometimes by a number of years. The patients become forgetful, defective in judgment, somewhat dull, show a poverty of thought and an incapacity for orderly activities. Generally there is an emotional depression, often with irritability and more rarely euphoric

2. Hamilton, Arthur S.: A Report of Twenty-seven Cases of Chronic Progressive Chorea. American Journal of Insanity. January, 1908.
3. Diefendorf, A. Ross: Neurographs. May, 1908.
4. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

symptoms. Delusions gradually develop. These are of a persecutory nature, although ideas of grandeur appear at times. Suicidal tendencies are common. Disturbances of perception and memory may be very pronounced. The relation of the patient to his environment becomes very much confused. In some cases, on the other hand, the mental symptoms are not very striking. Anxious states, outbursts of anger or emotional excitements may appear at times. Appetite and sleep are often interfered with. The pathology of this disease is not characteristic. There may be a chronic meningitis or extensive atrophies. The cells of the third layer of the cortex, according to Kraepelin, are decreased in number with an increase of glia nuclei. The remaining cells are shrunken with deeply staining processes, and there is a considerable loss of tangential fibres. Sclerotic changes with thickened walls are noted in the blood vessels. Hyaline degeneration and miliary hemorrhages have been observed, although Nissl and Alzheimer found no vascular lesions worthy of note. The cortical changes, according to Räcke, are more pronounced in the central convolutions, being much less conspicuous in the frontal and occipital regions. Alzheimer found the corpus striatum particularly involved. Here he noted a striking cell loss, with glia proliferation but no vascular changes. D'Ormea, according to Kraepelin, traced the disease through five generations in one family and Browning went as far back as two hundred years in another.

The observations on the subject of Huntington's chorea in the statistical manual of the American Psychiatric Association are as follows:—

"Mental symptoms are a constant accompaniment of this form of chorea and as a rule become more marked as the disease advances. Although the disease is regarded as being hereditary in nature, a diagnosis can be made on the clinical picture in the absence of a family history.

"The chief mental symptoms are those of mental inertia and an emotional change, either apathy and silliness or a depressive irritable reaction with a tendency to passionate outbursts. As the disease progresses the memory is affected to some extent, but the patient's ability to recall past events is often found to be surprisingly well preserved when the disinclination to cooperate and give information can be overcome. Likewise the orientation is well retained even when the patient appears very apathetic and listless. Suspicions and paranoid ideas are prominent in some cases."

Statistical reports from American institutions show that comparatively few cases of Huntington's chorea are committed. In 49,640 first admissions to the New York state hospitals only forty-eight, or .09 per cent, were diagnosed as Huntington's chorea during a period of eight years. The admission rate to the Massachusetts hospitals during 1919 was exactly the same. In twenty-one hospitals in fourteen other states twenty-four cases (.13 per cent) in 18,336 admissions were reported as Huntington's chorea. There were only seventy-five cases (.1 per cent) in 70,987 admissions to forty-eight hospitals in sixteen different states.

Psychoses with Brain Tumor

Brain tumors are more common perhaps than is generally understood. Cushing[5] shows that they were found in fifty-five, or 1.7 per cent, of 3,150 autopsies at the Johns Hopkins Hospital. He refers to Siedel, who observed them in 1.25 per cent of his cases in Munich and states that Blackburn found them in about two per cent of 1,642 autopsies at the St. Elizabeths Hospital in Washington. He also quotes Bruns as saying that two per cent of all neurological cases show intracranial

5. Cushing, Harvey. Tumors of the Brain and Meninges. Modern Medicine, Osler and McCrae. 1915.

growths. In the first twenty-five hundred surgical conditions admitted to the Peter Bent Brigham Hospital in Boston eight per cent were diagnosed as brain tumor. Cushing found that 66.6 per cent of 130 carefully studied growths were gliomata. Nearly four per cent were endotheliomas. In another series of seventy cases he found twenty-seven gliomas (38.5 per cent), seventeen adenomas (twenty-four per cent), seven endotheliomas (ten per cent), five interpeduncular and mixed growths (seven per cent), and other forms in smaller percentages. Many of the endotheliomas have undoubtedly been included in the past with the sarcomas. This may also be said of gliomas.

According to Cushing, growths in the brain may give rise to no disturbance whatever, show well defined focal signs, occasion only general manifestations, or have both general and focal symptoms, depending on the location of the neoplasm. General symptoms may be briefly summarized as follows:—headache, vomiting, choked disc, vertigo, drowsiness, convulsions, disturbances of the pulse rate, respiration and temperature, as well as mental disorders. The focal signs depend wholly on the site of the growth. Cushing mentions the following symptom complex as resulting from lesions of the frontal lobes:—"Indifference, unpunctuality, mental enfeeblement, loss of memory and power of attention, change in disposition with more or less marked irritability or taciturnity or obstinacy or jocularity, etc., often a rambling speech, lack of realization of the illness, and change in the general conduct of life with habits of untidiness. These, in greater or less degree, characterize most of the cases, although it is often astonishing to find how inconspicuous the symptoms may be with a very extensive growth. They may often be of rather abrupt onset and not until the situation of the lesion is definitely disclosed and careful interrogation made into the patient's previous mental state is it

possible to learn that in all probability some mental alteration has been of long standing."

Bruns did not find psychoses associated very often with frontal lesions. Jacobi, however, in reviewing the literature of growths in that region, found mental symptoms in forty-nine per cent. Schuster observed them in from fifty to sixty per cent of all brain tumors. Redlich [6] described mental conditions as being either incidental and not related to the growth, or definitely caused by it, and was even of the opinion that the neoplasm could in some instances be the result of a psychosis. Two of Redlich's patients, moderately alcoholic, showed a typical Korsakow syndrome. He refers to the fact that in cases reported by Oppenheim, Friedrich and Fürstner, "Witzelsucht," or the tendency to joke, disappeared after growths were removed from the frontal region. A patient of Begerthal, who had hallucinations, delusions and somatic symptoms, recovered after a tubercle was excised from the paracentral lobule. A case of Friedrich's which showed an alteration of the personality, erotic symptoms, sudden explosive laughter, poor memory, etc., recovered after a sarcoma was removed from the right frontal lobe. A patient of Thoma's after three attacks of mental depression showed a gliosarcoma in the occipital lobe at autopsy. Schuster, Bruns and Schönthal have reported cases of brain tumor with hysterical manifestations.

Redlich described the psychoses associated with cerebral growths as being epileptiform in character and origin and resembling post-epileptic psychoses in their symptomatology, with irritability, excitement or violence, confusion, delirium and hallucinations, often followed by partial amnesia. Epileptic manifestations may occur

6. Redlich, E.: The Pathogenesis of Psychic Disturbances in Brain Tumors. Reviewed by Morris J. Karpas. State Hospitals Bulletin, June, 1911.

in the form of equivalents during the development of the growth. Bernhardt and Oppenheim have called attention to episodes of vertigo, irritability, excitement, clouding and occasional delirium with amnesia following intense paroxysms of headache. These attacks also strongly suggest the characteristics of epileptic psychoses. Nothnagel, Bernhardt, Oppenheim, Schuster, Ziehen and others attribute the mental symptoms associated with brain tumor to increased intracranial pressure producing an anaemia. Klippel, Maillard, Vigouroux, Kaplan and others believe that they are due to toxins originating in the growth. This view is based largely on the appearance of psychoses similar to the Korsakow syndrome. Knapp in 1906 called attention to the prominence of mental symptoms in growths occurring in the anterior portion of the corpus callosum. These may be associated with intellectual defects, apraxia, speech disturbances and stupor. Gianelli found mental disturbances in 209 of 318 cases examined.

Kraepelin[7] attributes the mental symptoms of growths to an injury of the brain structure, changes in intracranial pressure, circulatory disturbances, and the absorption of toxic substances. A growth of considerable size but of slow development may permit of a readjustment of pressure, etc., and show few symptoms. On the other hand, a small neoplasm on account of its site or rapidity of growth may be accompanied by profound mental disturbances resulting from chemical irritation, obstruction of the aqueduct of Sylvius, or circulatory interferences. Kraepelin quotes Schuster (1902) as finding psychotic symptoms in all cases of growths in the corpus callosum, in two-thirds of those of the hypophysis, in one-third of those of the cerebellum and in one-fourth of the cases with involvement of the brain stem. These he looks upon as pressure symptoms except in the case

7. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

of the callosal neoplasms. Schuster was of the opinion that growths in the cortex usually lead to actual psychoses and those in the deeper areas to dementia. He found a general mental deterioration in 423 out of a total of 775 cases of brain tumor. The patients were indolent, inattentive, clumsy, forgetful, dull, tired easily and lost more and more their capacity and inclination for sustained exertion. Thought, decision and mental processes generally, required an unusual amount of effort. The patients usually became somewhat confused and disoriented in regard to time, place and person, as well as incoherent in speech. In many cases there is a marked memory disturbance with a tendency to fabrication suggesting Korsakow's psychosis. Delirious states with hallucinations sometimes accompany growths in the posterior lobes. Kraepelin has also observed hallucinations in cases with tumor of the cerebellum. Many develop hypochondriacal ideas, others have delusions of persecution or self-accusation and suicidal tendencies. Rarely there are delusions of grandeur. The mood is usually anxious, depressed and at times irritable or apathetic. Occasionally the patients may, on the other hand, be cheerful in spite of the hopeless condition they are in. They may even show distractibility, flight of ideas, volubility and excitement. There is more often a childish elation with a tendency to joking and facetiousness. Schuster found this more common in frontal involvements. Kraepelin also called attention to restlessness and excitements often leading to violence. This may alternate with mental dulness and cataleptic states. The patients may repeat words and make meaningless response to questions, strongly suggesting katatonia. Mental dulness becomes more and more marked, however, even reaching a stuporous stage. To this is added, according to the location of the growth, focal symptoms of various kinds—headache, disturbance of vision, seizures,

paralyses, aphasia, agraphia, articulatory disturbance, ataxia, etc. Special symptoms arise where psychogenic factors play a part,—excitements with paralyses or disturbance of perception, etc. Hysterical stigmata may appear. Cases with growths in the frontal region occasionally simulate general paresis but should be distinguished without difficulty.

The Association's statistical manual has the following to say of psychoses with brain tumor:—

"A large majority of brain tumor cases show definite mental symptoms. Most frequent are mental dullness, somnolence, hebetude, slowness in thinking, memory failure, irritability and depression, although a tendency to facetiousness is sometimes observed. Episodes of confusion with hallucinations are common; some cases express suspicions and paranoid ideas.

"The diagnosis must rest in most cases on the neurological symptoms, and these will depend on the location, size and rate of growth of the tumor. Certain general physical symptoms due to an increased intracranial pressure are present in most cases, viz.: headache, dizziness, vomiting, slowing of the pulse, choked disc and interlacing of the color fields."

The number of cases reaching hospitals for mental diseases is, of course, small. In 49,640 first admissions to the New York state hospitals in eight years there were sixty-seven cases (.14 per cent) of psychoses with brain tumor. In 18,336 admissions to twenty-one hospitals in fourteen other states there were eighteen cases (.09 per cent) diagnosed as psychoses with brain tumor. There were ninety-three cases (.13 per cent) in 70,987 first admissions to forty-eight hospitals for mental diseases in sixteen different states.

Psychoses with Other Brain or Nervous Diseases

Cerebral hemorrhages, thrombosis and embolism are more or less intimately associated etiologically, pathologically and clinically. They all bear a rather definite relation to the general question of arteriosclerosis and may all lead to cerebral softening. Apoplexy is a term which was employed by Aristophanes, Demosthenes and Sophocles and has been in general use for centuries. It was known to Chaucer and was referred to in Shakespeare's works ("Henry IV"). It was studied very elaborately by Sydenham and many other early writers. Charcot and Bouchard in 1864 called attention to the relation existing between miliary aneurysms of the cerebral vessels and hemorrhages. In a study of the cerebral vascular lesions at the University College Hospital, London, Jones (*Brain,* 1905) found records of one hundred and sixty cases occurring during a period of sixty-five years. Of these, 123 showed hemorrhages; twenty-four, thrombosis; and thirteen were due to embolism.

Thomas[8] states that: "The symptoms following acute vascular lesions of the brain, whether the process be the rupture of a vessel or its occlusion, are in many respects identical; and clinically it is often impossible to determine which process has been effective." He calls attention to the fact that in thrombosis the final closure of a vessel may occur suddenly and the symptoms develop with great rapidity. On the other hand, the rupture of a vessel may mean the escape of only a small quantity of blood and after an embolism the circulation is not always stopped immediately. In an analysis of 401 apoplectic attacks Thomas found no loss of consciousness in 202 cases, although it was interrupted or markedly disturbed in 199. Jones found a complete loss of conscious-

8. Thomas, Henry M.: Diseases of the Cerebral Bloodvessels. Modern Medicine, Osler and McCrae. 1915.

ness in 47.7 per cent of 201 cases of cerebral embolism and a partial disturbance in sixty per cent. He reported consciousness affected in seventy-five per cent of his cases of cerebral hemorrhage and in 45.5 per cent of those of thrombosis. When it occurs it is usually not the initial symptom in his experience, being preceded by headache, vertigo, weakness in certain parts of the body, etc. An analysis of the cases of embolism reported by Virchow, however, showed a sudden loss of consciousness as the initial symptom to be the general rule. Gowers is of the opinion that an initial softening is a more common occurrence than hemorrhage.

In the young, apoplectic attacks are usually due to cerebral softening, thrombosis following acute disease or embolism resulting from endocarditis. Between the ages of twenty and forty apoplexies usually mean syphilitic thrombosis. In the later decades of life, either hemorrhage, thrombosis, embolism or softening may occur. Thomas [9] collected from various hospitals, statistics of 840 cases. Of these, 499 showed hemorrhages and 341 softenings. He is of the opinion that the presence of premonitory symptoms for some days indicate thrombosis, while shorter prodromal periods point to a hemorrhage. Rapidly developing coma suggests hemorrhage, while a widespread paralysis without much disturbance of consciousness is more common in thrombosis. A marked fall of temperature and rise of blood pressure as a rule means a hemorrhage. Repeated convulsions are more often associated with softening or embolism. If the symptoms indicate a capsular lesion it favors hemorrhage, and if of a cortical type, softenings are more likely. A positive Wassermann reaction suggests thrombosis or softening. The presence of endocarditis with heart murmurs points to embolism. Thomas

9. Thomas, Henry M.: Diseases of the Cerebral Bloodvessels. Modern Medicine. Osler and McCrae. 1915.

finds that, while the patient may recover from either of these conditions without apparent intellectual defect, he is liable to be petulant, emotional, depressed and tire easily.

In psychoses following hemorrhage, thrombosis and embolism Kraepelin [10] as a rule finds very little relation between the nature of the lesion in question and the symptoms to be expected. Immediately following the seizure the patients become dull, clouded, confused and disoriented, and peculiar in their behavior. This is followed by an active excitement with loud cries, resistiveness and struggling. These acute disturbances usually subside, leaving, however, evidences of the arteriosclerosis or syphilitic endarteritis which caused the hemorrhage or thrombosis. Embolism may leave an apparently permanent mental deterioration with aphasic and paraphasic manifestations which often entirely clear up. In lesions of younger persons due to syphilis, mental enfeeblement may follow.

Our knowledge of the psychoses accompanying paralysis agitans is very inadequate. The disease was first fully described by Parkinson in an English publication in 1817, although, according to Camp, similar cases were reported by Schwarz in 1766. The etiology of this condition is unknown and the pathology is not at all definite. It seems to be the rather general opinion of neurologists that mental disturbances are quite rare in Parkinson's Disease. Camp,[11] for instance, has the following to say on this subject:—"Mental conditions have also been described, but usually the patient's mind is entirely clear. In the very old the changes incident to senility, such as irritability, childishness, etc., insomnia and memory

10. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.
11. Camp, Carl D.: Paralysis Agitans and Multiple Sclerosis and Their Treatment. Modern Treatment of Nervous and Mental Diseases. White and Jelliffe. 1913.

changes, might be expected and may require special treatment. Often these patients are emotionally unstable and spells of forced weeping or laughter occur." Krafft-Ebing refers to mental weakness in paralysis agitans and speaks of the frequency of melancholia with hallucinations and suicidal impulses occurring intermittently and appearing with exacerbations of the disease. He speaks of premature senility as playing the most important etiological rôle. McCarthy[12] expresses the opinion that: "Beyond a tendency on the part of some patients to adopt a whining and complaining manner, the mind remains very clear; in fact, the good nature and complaisance of most of the patients, in spite of the severity of the symptoms, is a matter of common observation. Dementia may, however, complicate a case of the disease." On the other hand, Parant, a French writer who made an elaborate study of this subject in 1883, described three distinct varieties of mental disturbance observed by him. In the milder cases he found changes in the personality. This is shown by irritability, egotism, restlessness, suspicion, undue sensitiveness regarding their disease, mild persecutory ideas, tendencies to depression, indifference and apathy. The second class of cases described included mental deterioration with difficulty of thought, loss of memory, etc. The third group includes definite psychoses characterized generally by depressions with or without hallucinations and delusions. Hallucinations of sight are said to be common. Delusions of persecution are prominent and hypochondriacal and somatic ideas frequently occur. Suicidal tendencies are very pronounced. According to Ball, these episodes come and go "with the aggravation of the sensory symptoms, and they seem to disappear when the tremor decreases or

12. McCarthy, Daniel J.: Paralysis Agitans, Chorea, etc. Modern Medicine. Osler and McCrae. 1915.

ceases entirely." The usual tendency in these cases, as shown by Parant, is to terminate in complete deterioration.

Of the inflammatory conditions of the meninges Kraepelin [13] makes special reference to mental disturbances associated with tuberculosis. The patient is depressed, anxious, irritable and apathetic, often with the first appearance of the disease. Dulness and memory disturbances become more and more apparent. The patient soon becomes clouded and disoriented, confused and delirious. Occasionally hallucinations appear. The disturbance of consciousness becomes more and more marked. The patient becomes incoherent, restless, noisy and often violent. The excitement may reach the stage of an actual mania with delirious confusion. Sometimes the symptoms are strongly suggestive of katatonia. In alcoholics a condition very similar to delirium tremens develops, terminating as a rule in stupor and coma. Speech disturbance, aphasia, convulsions, hyperesthesia or muscular weakness may be observed in such cases. Other forms of meningitis are quite similar but more rapid in development and of shorter duration. In some instances, as after epidemic cerebrospinal meningitis, states of mental enfeeblement may follow the disease.

It must be admitted that our information on the subject of multiple sclerosis is far from being complete. In a discussion of the mental symptoms accompanying this condition, Henderson [14] expressed the following views: —"Cases of disseminated sclerosis which present definite, well marked psychoses are extremely rare. When mental symptoms do occur, they usually come on when the condition is well advanced, the most common symptoms are mild euphoria, labile mood, apathy and dullness,

13. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.
14. Henderson, D. K.: Disseminated Sclerosis with Psychosis. State Hospitals Bulletin. March, 1910.

and a slightly defective memory. In some cases, however, depression has been described as the outstanding feature, while hallucinations of sight and hearing are not uncommon accompaniments. In certain cases the mental symptoms may come on early, and these are usually of excessive severity and are rapidly followed by complete dementia." Dunlap has described cases associated with general paresis and showing the characteristic lesions of both diseases at autopsy. According to Kraepelin [15] mental disturbances sometimes appear before physical symptoms are observed. These take the form of depression, anxiety, fear, with occasional deliria, hysterical manifestations, emotional dulness, variable moods and a marked irritability. Later in the disease more marked euphoric or depressive tendencies appear, with excitements and confusional states. Delusions of a persecutory nature, or ideas of grandeur may be observed. Hallucinations are infrequent. According to Kraepelin, from ten to thirty per cent of the cases terminate in a general mental enfeeblement which is not usually of an advanced degree. He also describes a lobar cortical sclerosis with much more marked mental disturbances suggesting dementia praecox.

Various mental conditions have been attributed to tabes. Sachs [16] speaks of depressions and neurasthenic conditions with irritability as a special symptom. He has observed paranoid states and manic attacks, sometimes with periods of "transitory dementia" with or without aphasia. He also expresses the opinion that tabetics may develop all of the symptoms of general paresis, although he says that the coexistence of the two diseases is rare. Kraepelin [17] speaks of milder forms of psychoses characterized by uncertainty of memory, fatig-

15. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.
16. Sachs, Bernard: Syphilitic Diseases of the Central Nervous System. Modern Medicine, Osler and McCrae. 1915.
17. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

ability and emotional instability. Many cases exhibit a hopeless, gloomy attitude with depression and fears, or they may be surly, irritable and quarrelsome. Others show a surprisingly good humor. The emotional disturbances often suggest general paresis. Kraepelin, however, describes the characteristic psychosis of locomotor ataxia as assuming a paranoid form and quotes Meyer as reporting paranoic conditions in twenty-six tabetics and depressions of various types in fourteen. He also speaks of hallucinatory excitements resembling alcoholic conditions. These are characterized by a sudden anxiety and restlessness with hallucinations of both hearing and vision. The patients complain of poisoning and sensations of electricity, but are cheerful in mood and well oriented. This condition may last for weeks or months, ending in a sudden recovery, often with relapses. Shorter hallucinatory delirious states resembling crises are also referred to by Kraepelin. More chronic conditions are noted, with hallucinations, persecutory delusions and ideas of grandeur. Delirium tremens, manic-depressive attacks, katatonia or senile psychoses may be associated with tabes.

The literature of medicine contains many references to acute chorea. It was referred to, according to Paton, by Plat as early as 1614 and was discussed by Sydenham at some length. Wharton Sinkler, in describing chorea in Pepper's "System of Medicine" in 1886, made the following interesting remarks on the mental changes involved:—"The child is irritable and feverish, cries and laughs readily, or is sullen and morose. Sometimes he is violent to those about him but this is rare. Intellectually the patient suffers somewhat. He is not able to study as before, and the memory may be impaired. Sometimes there is a mild form of dementia." Burr[18] divides

18. McCarthy, Daniel J.: Paralysis Agitans, Chorea, etc. Modern Medicine, Osler and McCrae. 1915.

these conditions into four groups:—"First (and this includes the vast majority), patients in whom there is peevishness, fretfulness, some loss of the power of fixing the attention, and a slight loss of the moral sense shown by disobedience and selfishness. Second, those showing in addition to the above symptoms, night terrors, and transitory, visual, auditory, or other hallucinations. Third, those with distinct delirium, wild or mild, accompanied with fever. Fourth (and this group is very small when we remember how common chorea is), those showing stupor, or rather stupidity, and an acute dementia, which may follow the condition described under three, or appear without any preceding mental symptoms at all severe, and which is usually accompanied with trouble on articulation not caused by choreic movements of the lips and tongue, but the result of mental hebetude." White [19] refers to the irritability and emotional instability of choreics and describes a psychosis in "chorea insaniens" characterized by an acute confusion, sometimes of a violent type with hallucinations, or a paranoic condition with delusions of persecution. This may develop into a stuporous state. Kraepelin describes the psychotic manifestations of acute chorea as forms of delirium due to infection with characteristic states of clouding, confusion, etc. Wechsler has expressed similar views.

Encephalitis lethargica is a disease which has received a great deal of attention during the last few years. The term was first applied by von Economo [20] to a series of cases observed by him in Vienna in 1917, although, as he has pointed out, similar epidemics occurred as early as in 1712. This condition is characterized particularly by lethargy, facial and oculomotor paralyses and a rise of temperature. Cases were reported from England and France by various observers in 1918 and by Pothier,

19. White, William A.: Outlines of Psychiatry. 1919.
20. Economo, C. von: Wien Klin. Wochenschrift. July 26, 1917.

Neal and others in this country in 1919. It has been suggested frequently that the disease is in some way associated with influenza. The pathological findings have also been confused with the African sleeping sickness due to trypanosomes. After such prodromal symptoms as headache, malaise and drowsiness with muscular weakness for a few days, a lethargic or stuporous state usually develops, interrupted occasionally by delirious attacks. Ptosis has been reported, sometimes with immobility of the pupils. Paralyses of the facial and eye muscles are very common. Buzzard and Greenfield [21] after a review of twenty-two cases suggested the following symptomatological classification:—1. Cases characterized by hemiplegia, hemianesthesia, hemianopsia, etc.; 2. Cases characterized by symptoms resembling those of paralysis agitans:—the basal ganglia group; and 3. Cases characterized by a disturbance of the cranial nerve functions. In a publication issued recently by the United States Public Health Service the various types of the disease were summarized as follows:—1. A clinical affection of the third pair of nerves; 2. Affections of the brain stem and bulb; 3. Affections of the long tracts; 4. The ataxic type; 5. Affections of the cerebral cortex; 6. Cases with evidence of spinal cord involvement; and 7. The polyneuritic type with involvement of the peripheral nerves. The Massachusetts Department of Public Health has recently recommended the use of the MacNulty classification, which is quite similar in some respects:—

1. Symptoms of a general nature referable to the central nervous system with no localizing signs.
2. General symptoms with third nerve paralysis.
3. General symptoms with localizing signs of facial paralysis.

21. Buzzard, E., Farquhar, and Greenfield, J. G.: Lethargic Encephalitis Brain, 1919.

4. General symptoms with localizing signs extending down to the cord.
5. General symptoms with polyneuritic involvements.
6. Mild and abortive cases.

Autopsies have shown meningeal and cortical congestion, degeneration of the nerve cells, and thickening of the vessels with endothelial proliferation of the glia. Venous thrombosis and multiple hemorrhages also occur. In a study of the cerebrospinal fluid Boveri [22] found the pressure slightly greater in many cases with an increase in the albumen and globulin content and a mild lymphocytosis in occasional cases. The findings are not characteristic or of great diagnostic value. Efforts to isolate the organism responsible for this disease have so far been unsuccessful.

The mental symptoms associated with encephalitis lethargica have been studied recently by Abrahamson [23]. He finds that the patient can be aroused from the initial lethargy and responds quickly and coherently to questions, relapsing again into an apparent sleep. Some irritability is shown. The attitude "expresses a desire to be left alone." If the somnolence disappears it is usually followed by a period of depression. The patient complains of weariness and inability to sleep. Choreic manifestations sometimes occur. The somnolence may terminate, on the other hand, in a profound stupor resembling a drug intoxication with a restless delirium. Even then the patient can be roused momentarily. Responses are automatic with no evidences of emotional disturbance. Flexibilitas cerea is often present. This condition may be followed by a period of confusion, disorientation and amnesia suggesting Korsakow's disease.

22. Boveri, Piero: The Cerebrospinal Fluid in Epidemic Encephalitis. Journal of Nervous and Mental Diseases. October, 1920.
23. Abrahamson, Isador: Mental Disturbances in Lethargic Encephalitis. Journal of Nervous and Mental Diseases. September, 1920.

There is usually a period of mental depression with poverty of thought. Occasional hallucinations were also observed.

An exceedingly important contribution to the literature of encephalitis lethargica is an analysis recently made of the symptoms shown in eighteen cases by Kirby and Davis.[24] "The psychic disturbances of epidemic encephalitis present the general characteristics of an acute organic type of mental reaction, corresponding more specifically to a toxic-infectious psychosis. In the acute stages of the disease, psychic torpor and delirium are the most frequently observed mental disturbances although other clinical pictures may be encountered, as the Korsakoff syndrome or more complex mental disorders in which various affective and trend reactions give a special cast to the psychotic disturbance." They report two types of sleep disturbance, hypersomnia and hyposomnia. The former is characterized by drowsiness, lethargy, stupor or coma, depending entirely on the degree reached. In the latter the patient is sleepless at night and somnolent during the daytime. Usually delirium was present at some time in both types of the disease. Often there was a brief period showing a mild depression or anxiety, following lethargy or delirium. Euphoria was observed in a number of instances. In the unrecovered cases they often found residuals—"depressive affects, emotional elevations, irritability, explosive reactions, stubbornness, apathy, etc." Their findings may be summarized perhaps in the statement that "definitely formulated and persistent trends are infrequent in epidemic encephalitis . . . we have found much evidence of persisting emotional alteration with little evidence of organic mental defects or dementia."

24. Kirby, George H., and Davis, Thomas K.: Psychotic Aspects of Epidemic Encephalitis. Archives of Neurology and Psychiatry. May, 1921.

A review of the statistics of American institutions shows that psychoses associated with brain and nervous diseases other than Huntington's chorea and brain tumor, which have already been discussed, are exceedingly rare. The percentage of cases reported in the New York hospitals was .95, in the Massachusetts institutions, 1.02, and in twenty-one other hospitals only 1.56. In a total of 70,987 first admissions there were only 787 cases (1.1 per cent). The relative frequency of the various forms is illustrated by the statistics of the admissions to the New York state hospitals during a period of eight years. Of 462 cases, 160 were diagnosed as psychoses due to cerebral embolism; twelve, to meningitis; twenty, to multiple sclerosis; thirty-eight, to tabes; thirty-four, to acute chorea; and 163, to other conditions not specified. These figures are astonishing when the fact that 49,640 patients were admitted during that time is taken into consideration.

CHAPTER VII

THE ALCOHOLIC PSYCHOSES

According to Tuke,[1] one of the oldest of the Egyptian papyri in the British Museum (Papyrus Sallier I) makes the following very interesting reference to alcoholism:—"Whereas it has been told me that thou hast forsaken books, and devoted thyself to pleasure; that thou goest from tavern to tavern, smelling of beer, at the time of evening. If beer gets into a man it overcomes his mind. . . . Thou knowest that wine is an abomination, that thou hast taken an oath that thou wouldst not put liquor into thee. Hast thou forgotten thy resolution?" It is difficult to realize that this refers to one of the earliest periods of recorded history. Hebrew, Greek and Roman literature are prolific in equally significant testimonials to the antiquity of alcohol as an intoxicant. It was referred to at considerable length by Aristotle, Plutarch and Hippocrates. That Haslam appreciated the important relation existing between alcoholism and mental disorders is shown by the following comment on this subject written in 1808:—"Thus a man is permitted slowly to poison and destroy himself; to produce a state of irritation, which disqualifies him from any of the useful purposes of life; to squander his property among the most worthless and abandoned; to communicate a loathsome and disgraceful disease to a virtuous wife; to leave an innocent and helpless family to the meagre protection of the parish. If it be possible the law ought to define the circumstances under which it becomes justifiable to restrain a human being from effecting his own destruc-

1. Tuke, D. Hack: A Dictionary of Psychological Medicine. 1892.

tion, and involving his family in misery and ruin. When a man suddenly bursts through the barriers of established opinion; if he attempts to strangle himself with a cord, to divide his large blood vessels with a knife, or swallow a vial full of laudanum, no one entertains any doubt about his being a proper subject for the superintendence of keepers; but he is allowed, without control, by a gradual process, to undermine the fabric of his health and destroy the property of his family."

Curiously enough the word alcohol is of Arabic origin and was employed originally to describe a powder used in applications to the eyebrows for cosmetic purposes. It was subsequently used for centuries as referring to a fine powder of any kind, as is shown by the writings of Paracelsus and others. The chemical composition of alcohol was not known until 1808, when it was described by Lavoisier. On the other hand, Salvatori in 1817 and Hufeland in 1818 referred to dipsomania as a disorder due to alcoholism. Esquirol, Trélat and other early writers included it in the "partial" insanities. Morel described it as an impulsive form of "délire émotif" and looked upon it as an hereditary condition. It has been classified with the periodical insanities and even as a form of melancholia. Magnan saw in it an episode of the insanity of degeneracy. Magnus Huss was responsible for the introduction of the term "chronic alcoholism" as descriptive of a pathological condition in 1852.

It is said that Caelius Aurelianus protested against the use of intoxicants in the treatment of the insane. Notwithstanding this early reference to a question of such importance, and the inauguration of the great temperance crusade which began in 1808, it has been shown by Tuke [2] that alcoholic beverages were issued in a routine way to patients and employees of the British

2. Tuke, D. Hack: Alcohol, Use of, as a Beverage in Asylums. A Dictionary of Psychological Medicine. 1892.

LANE LIBRARY. STANFORD UNIVERSITY.

asylums for the insane less than forty years ago. "Thirty superintendents hold that they have observed very beneficial results from the course pursued. The improvement usually refers not only to the patients, but to the discipline of the asylum." The cost of beer supplied to the inmates at the Glamorgan Asylum at one time was reported to be as high as two hundred and sixty pounds per year (Tuke). Beer was not discontinued as a regular article of diet for patients at the Derby Asylum until 1884.

In 1844 Flemming [3] in his classification of psychoses mentioned the following forms of alcoholic insanity:—Ferocitas et morositas ebriosorum, anoësia e potu, anoësia semisomnis, delirium tremens, and mania à potu. Clouston [4] described acute and chronic forms—mania à potu, dipsomania, alcoholic dementia and degeneration. Krafft-Ebing [5] speaks of hallucinations of the inebriate, delirium tremens, alcoholic melancholia, mania gravis potatorum, hallucinatory insanity, alcoholic paranoia, alcoholic paralysis and epilepsy. Delirium tremens he ascribes either to repeated excesses (à potu nimio), abstinence (à potu intermisso), insufficient nourishment, violent emotions, pneumonia and other acute diseases, loss of sleep, injuries such as fractures, etc. By hallucination of the inebriate (sensuum fallacia ebriosa) he refers to the transitory hallucinations of the constant drinker. Meyer [6] has described an alcoholic constitution "as shown by the lachrymose, prevaricating, jealous deterioration of the drinker."

3. Flemming, C. F.: Ueber Classification die Seelenstörungen. Allgemeine Zeitschrift für Psychiatrie. 1844.
4. Clouston, T. S.: Clinical Lectures on Mental Diseases. 1898.
5. Krafft-Ebing, R. von: Text-book of Insanity. Translated by C. G. Chaddock. 1905.
6. Meyer, Adolf: Modern Psychiatry: Its Possibilities and Responsibilities. New York State Hospitals Bulletin. September, 1909.

Stöcker,[7] after an extended study of a considerable number of cases, came to the conclusion that alcoholism is the result of a constitutional condition but not the cause of characteristic psychoses. Often, as was also shown by Bonhöffer, it is to be attributed to a psychopathic personality either acquired or congenital. The psychoses represented by the group of patients he examined included manic-depressive insanity, dementia praecox, hysteria, epilepsy and other miscellaneous conditions. He refers to dipsomania as an epileptic equivalent. His conclusions in brief were as follows:—"Chronic alcoholism in the first place is a symptom of a mental disease. It may, however, so exaggerate stationary epilepsy, chronic mania, dementia praecox, etc., which hitherto were latent, and perhaps would remain still latent without alcoholic abuses, that it may lead to a sudden outbreak of a turbulent disease manifestation. It may also give these diseases peculiar traits or a peculiar coloring for some time, which above all, may appear as the most striking phenomena, and thus cover up the symptoms of the fundamental disorder. Furthermore, it may, also, on the basis of this constitutional disease give rise to independent clinical pictures." Karpas[8] in commenting on this says: "One must remember that cravings play important rôles in our mental life. Some of our cravings are gratified; others find realization in our dreams; still others are repressed and compensated. In fact, our mental life is nothing but a readjustment, of complex reactions. The poet finds recourse in his phantasies; the philosopher gives vent to his theoretical specu-

7. Stöcker, Wilhelm: Klinischer Beitrag zur Frage der Alkoholpsychosen. Jena, 1910. Abstract of Morris J. Karpas in State Hospitals Bulletin, December, 1910.

8. Ibid.

lations; the scientist resorts to his inventions and hypothetical theories; the well balanced, normal individual seeks readjustment in healthy activities,—art, literature, science, occupations, sport, etc., etc. But the individual with a poorly endowed constitution finds refuge in neurosis, psychosis, alcoholism, drugs, and other vicious habits. We must recognize that alcoholism is nothing but a compensation for a complex, the fulfillment of which was denied by reality."

Kraepelin[9] described acute and chronic alcoholism, pathological intoxication, alcoholic jealousy, delirium tremens, Korsakow's psychosis, alcoholic hallucinoses, paralysis and pseudo-paresis. In acute intoxication Kraepelin finds an inhibition of apprehension, mental grasp and the elaboration of outer impressions with a stimulation of the release of volitional impulses. A clouding of consciousness develops, associated with emotional excitement and a weakness of will power. Perception and mental reactions are delayed and their accuracy decreased on mental tests. The discrimination between louder sounds is uncertain, although the sensitiveness to lighter sound impressions is increased as in the ether narcosis. Busch found a limitation of the field of vision. The preservation of memory impressions is imperfect. A solution of mathematical problems shows a lowered mental capacity for work. The association of ideas and composition of sentences is delayed. There is a tendency to new word formation, phrasing and rhyming, with a certain amount of distractibility. Goal ideas are often missed, and consistent, orderly thought is not possible. Expression is rapid and impulsive, and is often characterized by a loud tone of voice.

After larger amounts of alcohol psychomotor activities are interfered with as shown by the writing, and ataxia appears. The reflexes show an increased muscular

9. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

tension. Physical strength is markedly lowered, although it may be increased for a very short time. Alcohol even in small amounts interferes with productive mental processes. Ideas lose in clearness and sharpness, fatigue occurs earlier and efficiency and judgment are impaired. Still larger amounts retard apprehension and comprehension and the intoxicated person no longer knows what is said to him. All ability to control his conduct is lost. There is a tendency to repetition in speech, rhyming and jargon. Capacity for mental work is finally entirely gone and memory becomes confused. Psychomotor stimulation and excitement appear early, terminating finally in weakness. Emotional trends, at first happy and cheerful, are usually irritable, later with outbursts of anger. Sexual excitement often appears. Various physical disturbances have been described.

In the pathological or complicated intoxications as described by Kraepelin, unusual emotional disturbances such as violent excitements occur. Anger or anxiety may develop with a clouding of the consciousness, and lead to uncontrollable rages with impulses to assault and kill. The most marked excitements occur in epileptics. The outburst is usually sudden in these cases and is followed by the most senseless and unjustifiable acts. Occasionally suicide is the result. In hysterical and psychopathic individuals alcohol may cause serious emotional disturbances, with clouding of consciousness or even delusion formation. Chronic drinkers are very likely to have abnormal symptoms at times. They often show a marked irritability followed by a pathetic and tearful mood. Abusive treatment of members of the family, jealousy, threats and violence are not uncommon. Delirious or anxious states with persecutory ideas and hallucinations are sometimes observed. These may exist only during intoxication. Alcohol often produces extreme excitements in cases of manic-depressive insanity, general paresis

and dementia praecox. Pathological changes of various kinds have been reported. In acute alcoholism Nissl found a destruction of cortical cells in some cases and a disappearance of the stainable lumps in others. The nuclei of the neurones were shrunken and sometimes displaced.

Various tests have demonstrated the limited mental capacity of the chronic alcoholic. Will power is greatly reduced and fatigability increased. Memory and attention are affected and falsification of the past may occur. The patient learns nothing new and forgets the important things. All productive efficiency is gone and interest is lost. Weakness of judgment and loss of memory capacity lead to delusion formation. These often take the form of ideas of jealousy. Delusions of persecution, poisoning or grandeur may appear from time to time. Frequently there are genuine hallucinations. Some cases terminate finally in mental enfeeblement. Emotional changes are common in the chronic drinkers. The alcoholic humor is characteristic. The capacity for taking things seriously has been lost and there is a tendency to undue levity, often with a marked feeling of self-satisfaction. Some individuals, however, become moody, irritable or dull. Occasionally anxious states appear, frequently with suicidal attempts. One of the common symptoms of this condition is an extraordinary irritability after drinking. This leads to quarrels, assaults and violence. Consideration for others is completely lost. These attacks are often followed by remorse. A prominent and significant feature of the disease is the marked moral deterioration. All affection for family and children may be lost. Selfishness is pronounced and the patient spends all of his money for drink. Sexual excitement is sometimes an important symptom. With all of this there is a constant craving for alcohol. The patients have no insight into their condition and attribute

their headache and tremors to overexertion, etc. They always deny using much alcohol and are absolutely untruthful on this subject. Overwork necessitates drinking, or it only happens after a death in the family, etc. Will power deteriorates rapidly. These individuals often commit crimes and come into conflict with the law. Gastritis, cirrhosis of the liver and numerous other diseases complicate the situation. Dizzy spells and headaches are common, as well as tremors of the tongue and fingers. Neurotic involvements are noted, with anesthesias, hyperesthesias, paresthesias, and muscular atrophies as well as speech defects. Epileptiform attacks are not infrequent in chronic alcoholism, and were found in ten per cent of Kraepelin's cases. His investigations showed that eleven per cent of the beer drinkers in Munich had convulsions. Combinations of epilepsy and hysterical manifestations with chronic alcoholism are not at all unusual. Rybakoff found a hereditary taint in 66.6 per cent of his cases while Moli reported only forty-seven per cent. Heredity was found to be a factor in thirty-seven per cent of Kraepelin's Heidelberg cases and in seventeen per cent of those at Munich. He describes various pathological findings in chronic alcoholism. Meningitis with hemorrhagic membranes is common. The convolutions are atrophied and the ependyma of the ventricles thickened. Pigmentary deposits similar to those of senility are found in the cells and vessel walls. There is an increase of both neuroglia cells and fibres. Hemorrhages are occasionally found in the central gray matter.

When the suspicions of the chronic alcoholic lead to well defined delusions Kraepelin speaks of "alcoholic jealousy" as constituting a distinct psychosis. The patient sees in almost everything evidences of infidelity on the part of his wife and is often inclined to question the legitimacy of his own children. Assaults and vio-

lence are frequent occurrences. Occasionally genuine hallucinations accompany this condition. Suicidal and homicidal attempts are not uncommon.

The onset of delirium tremens, first described by Thomas Sutton in 1813, is characterized by states of anxiety, fear, insomnia with disturbing dreams, sensory excitement, hyperesthesias, flashes of light, etc. The development usually is sudden, with a loss of attention, disturbance of apprehension, restlessness, distractibility, numerous hallucinations of the different senses, illusions, clouded states with disorientation, tremors and ataxia. Touch, pain and temperature sensations, according to Kraepelin, are undisturbed. The field of vision is sometimes narrowed. Recognition of colors is uncertain. There is a marked disturbance of the equilibrium, suggesting some lesion either of the eye muscles or of the labyrinth. A decided lengthening of the reaction time in associations has been shown by various observers. Sensory hallucinations are common. The ability to read correctly is entirely lost and what is read is meaningless. A paraphasic form of reading has been described by Bonhöffer. The attention cannot be held for any length of time. A dreamy clouded state is characteristic. Disorientation is usually complete in the severe cases. The hallucinations and illusions are very marked and sometimes even suggest moving pictures to the patient. Hallucinations of vision are more common than those of hearing. Peculiar skin sensations such as feelings of electricity are spoken of. Hallucinations may be induced by pressure on the eyeball and sometimes by suggestion. There is occasionally a confusional form of speech suggesting dementia praecox, with a tendency to coin new words and employ entirely meaningless terms. Although consciousness is not always entirely clouded, events transpire as in a dream, always confused by innumerable hallucinations. An occupation delirium is common, the pa-

tient imagining himself busy at his customary work. Delusional ideas regarding everything in his surroundings are frequent. Ideas of grandeur sometimes occur. Never, according to Bonhöffer, is there a complete disorientation as far as personality is concerned. The patient always knows who and what he is. Complete mental confusion is not the rule. Distractibility is usually very well developed. Bonhöffer found an inability to supply omitted words and syllables from well known phrases and memory for test words and numbers was impaired. Articles read are repeated with many changes and omissions. Memory for remote events is usually well preserved. Sometimes there is a falsification of the past. The mood is anxious, fearful, seldom irritable, at times actually humorous. Cheerfulness and fear of death occasionally alternate.

The course of the disease is characterized by great restlessness often with a tendency to talkativeness. There is, however, no flight of ideas or rhyming. Delusions of persecution occur in some cases. Anesthesias, hyperesthesias, paresthesias, hypalgesias and sensitiveness of nerves and muscles are noted. Romberg's sign is present in some instances. Speech is often ataxic and paraphasic, and in advanced cases entirely meaningless. Tremors of the tongue and fingers are very characteristic. Writing is very much affected as a result. Epileptiform convulsions sometimes occur. Rarely focal symptoms, facial paralysis and hemiplegia appear for a short time. Reflexes are increased and ankle clonus occasionally appears. Defective pupillary reaction and unequal pupils may be found, with diplopia and muscular weakness. Sleep is seriously interfered with. Bodily weight is reduced and blood pressure lowered. The temperature is usually elevated and the pulse accelerated. Albumen and sometimes sugar is present in the urine. The delirium often stops as suddenly as it begins, termi-

nating in sleep, the patient being clear when he wakes. The memory of events is not well retained on recovery. The delirium may, however, become chronic and last for months. Some cases terminate in a hallucinatory feeblemindedness. This is likely to occur in psychopathic individuals. Hallucinations of hearing are more common in such conditions. People read their thoughts and influence their minds. They are subjected to hypnotism and electricity. The delusional ideas may be of a sexual nature or grandiose in character. The mood may be anxious or irritable. Suicidal tendencies sometimes appear. Later a humorous trend is often noted. Tremors and other neurological symptoms sometimes occur. Bonhöffer found at autopsy a considerable fibre loss in the central convolutions, the cerebellum and the column of Goll. In the large pyramidal and motor cells of the anterior central convolution the processes were deeply stained. Some nuclear changes were noted and occasional cells destroyed. Nissl described a granular degeneration of the neurones with a prominence of the "unstainable" substance, together with a swelling and crumbling of the cell bodies. Alzheimer often found free nuclei near the apical processes. In the glia cells and vessel walls granular detritus was observed. Acute and chronic cell alterations are more common in old alcoholics. Pachymeningitis hemorrhagica is sometimes found. Kraepelin considers it very doubtful whether wine or beer drinking ever causes delirium tremens, whisky and gin being the etiological factors as a general rule.

Korsakow's psychosis was first described in 1887. This is characterized by a loss of memory, and falsification, with a marked tendency to disorientation, and is often due to chronic alcoholism. It is practically always accompanied by polyneuritic symptoms. According to Bonhöffer, it usually follows delirium tremens. This

occurred in one-fourth of Kraepelin's cases. Occasionally it begins suddenly, but as a rule gradually, during the course of a chronic alcoholism. The patients frequently complain of dizziness, headaches and fainting spells. In the foreground of this affection is the impairment of memory. This is one of the characteristic features. The events of a few hours ago are completely forgotten. Disorientation appears next. This affects time more than anything else. The power of apprehension or perception is very markedly impaired (one-sixth of the normal in Kraepelin's cases) and the reaction time is greatly increased. He also found memory reduced to one-third or one-fourth of the normal on actual tests (repetition of words and syllables). Falsification of past events is also demonstrable. This often leads to elaborate delusion formations. The mood is usually anxious at first, later indifferent, dull, suspicious, irritable, in some cases cheerful and even humorous. The methods of life are completely changed. The patients neglect themselves, lie in bed, etc. The physical signs are those of neuritis. Muscular pains in the limbs appear, with evidences of loss of power. Paraplegias and weakness of the grip are found. Romberg's sign is frequently present. Anesthesias, hyperesthesias or paresthesias are noted. The reflexes are usually decreased, rarely increased. Ataxia and other difficulties of gait are common. The pulse is usually slower as a result of involvement of the vagus. Speech difficulty, writing defects, facial paralyses, weakness of the eye muscles, with inequality and inactivity of the pupils, are to be expected. There are usually tremors of the fingers. Epileptiform convulsions are not infrequent. Aphasia, agraphia, apraxia, monoplegia, hemiplegia, etc., are observed in many cases. Physical disturbances of various kinds due to chronic alcoholism are also present.

At autopsy acute and grave alterations are found in

the cells of the second and third layers of the cortex. A granular degeneration (Körnig Zellerkrankung) of the cells is also referred to by Nissl. There is some fibre loss in the central convolutions and the internal capsule, as well as in the columns of Goll. Hemorrhages and thromboses are to be found. Alzheimer found encephalitic foci with proliferation of the cells of the vessel walls sending out fibroblasts in the neighborhood, and a destruction of the nerve fibres. These foci are found in the central gray matter of the third ventricle, roof of the aqueduct, etc. There is a formation of new vessels and an outwandering of cells often accompanied by numerous hemorrhages into the gray matter around the aqueduct of Sylvius. Wernicke has described this process as an "acute hemorrhagic polioencephalitis superior" and finds it very commonly associated with Korsakow's psychosis. It occurs, however, in other chronic alcoholic conditions. The peripheral nerves also show a polyneuritis. Bonhöffer found Korsakow's psychosis in three per cent of his delirious cases. Thirty-three per cent of Kraepelin's cases were women and only 24.5 per cent were under forty years of age. Chotzen found Korsakow's psychosis in three per cent of his male and in twenty-one per cent of his female alcoholics.

The acute alcoholic hallucinoses as described by Kraepelin are characterized by well defined delusions of persecution and above all by hallucinations of hearing, with a clear sensorium. In eighty per cent of the cases the symptoms appear suddenly. Sometimes there is first an abortive delirious attack. Usually a multiplicity of hallucinations of hearing develop early. The patient hears threats and abusive language, always directed against himself. Visual hallucinations also occur, particularly at night. The other sensory fields are often involved. At the same time well marked delusions manifest themselves. These suggest every possible variety of

persecution. Ideas of grandeur are sometimes observed. All of these symptoms are worse at night as a rule. Consciousness is usually fairly clear, and there is no disorientation. There is often a mixture of anxiety and humor. Some cases, however, are irritable and suspicious. Occasionally suicidal tendencies appear. Conduct is usually not greatly disturbed and the patient continues with his regular occupation. There is considerable insomnia and a tendency to run around a great deal and act foolishly at times. Physically, evidences of chronic alcoholism are always to be found. The customary duration of these acute conditions is from three to eight weeks, although they sometimes last for months. In a quarter of Kraepelin's cases the termination was in deterioration. There is a strong tendency to recurrence. The unrecovered cases are suspicious, surly, quarrelsome and have hallucinations of hearing. This condition may last for years. There are always occasional persecutory ideas. One-fifth of Kraepelin's cases became chronic. Bonhöffer described a paranoid type of long duration. The hallucinoses appear usually earlier in life than Korsakow's psychosis but later than delirium tremens. In Kraepelin's experience delirium tremens is three times as common as are hallucinoses. He looks upon these two conditions, however, as different clinical manifestations of "one and the same" disease process.

Alcoholic paralysis, so called, is a mixture of chronic alcoholic symptoms with those of general paresis. There is a mental deterioration with ideas of grandeur, emotional dulness, hallucinations, delusions of jealousy, speech defect, tremors and polyneuritis. Epileptiform attacks are frequent. Most of these forms according to Kraepelin belong to Korsakow's psychosis or polioencephalitis hemorrhagica superior. Alcoholic conditions may also be complicated by syphilis or arteriosclerosis.

Since the alcoholic psychoses have been generally rec-

organized as such, there has been comparatively little difference of opinion as to their differentiation. The classification of the American Psychiatric Association is as follows:—

"The diagnosis of alcoholic psychosis should be restricted to those mental disorders arising, with few exceptions, in connection with *chronic* drinking and presenting fairly well defined symptom-pictures. One must guard against making the alcoholic group too inclusive. Overindulgence in alcohol is often found to be merely a symptom of another psychosis, or at any rate may be incidental to another psychosis, such as general paralysis, manic-depressive insanity, dementia praecox, epilepsy, etc. The cases to be regarded as alcoholic psychoses which do not result from chronic drinking are the episodic attacks in some psychopathic personalities, the dipsomanias (the true periodic drinkers) and pathological intoxication, any of which may develop as the result of a single imbibition or a relatively short spree.

"The following alcoholic reactions usually present symptoms distinctive enough to allow of clinical differentiation:

"(a) Pathological intoxication: An unusual or abnormal immediate reaction to taking a large or small amount of alcohol. Essentially an acute mental disturbance of short duration characterized usually by an excitement or furor with confusion and hallucinations, followed by amnesia.

"(b) Delirium tremens: An hallucinatory delirium with marked general tremor and toxic symptoms.

"(c) Korsakow's psychosis: This occurs with or without polyneuritis. The delirious type is not readily differentiated in the early stages from severe delirium tremens but is more protracted. The non-delirious type presents a characteristic retention defect with disorientation, fabrication, suggestibility and tendency to mis-

identify persons. Hallucinations are frequent after the acute phase.

"(d) Acute hallucinosis: This is chiefly an auditory hallucinosis of rapid development with clearness of the sensorium, marked fears, and a more or less systematized persecutory trend.

"(e) Chronic hallucinosis: This is an infrequent type which may be regarded as the persistence of the symptoms of the acute hallucinosis without change in the character of the symptoms except perhaps a gradual lessening of the emotional reaction accompanying the hallucinations.

"(f) Acute paranoid type: Suspicions, misinterpretations, and persecutory ideas, often a jealous trend, hallucinations usually subordinate; clearing up on withdrawal of alcohol.

"(g) Chronic paranoid type: Persistence of symptoms of the acute paranoid type with fixed delusions of persecution or jealousy usually not influenced by withdrawal of alcohol; difficult to differentiate from non-alcoholic paranoid states or dementia praecox.

"(h) Alcoholic deterioration: A slowly developing ethical, volitional and emotional change in the habitual drinker; apparently relatively few cases are committed, as the mental symptoms are not usually looked upon as sufficient to justify the diagnosis of a definite psychosis. The chief symptoms are ill humor and irascibility or a jovial, careless, flippant, facetious mood; abusiveness to family, unreliability and tendency to prevarication; in some cases definite suspicions and jealousy; there is a general lessening of efficiency and capacity for physical and mental work; memory not seriously impaired. To be excluded are residual defects due to Korsakow's psychosis, or mental deterioration due to arteriosclerosis or to traumatic lesions.

"(i) Other types, acute or chronic (to be specified)."

Shadwell[10] states that in twenty-six Italian asylums 18.6 per cent of their cases were directly or indirectly the result of alcoholism. Twenty-one and one-tenth per cent of the males and 4.37 per cent of the females admitted to the institutions of Switzerland from 1901 to 1904 were alcoholics. Twenty-one and thirty-seven hundredths per cent of the admissions to the hospitals in Denmark between 1899 and 1903 were suffering from alcoholic psychoses. He gives the admission rate in Austria as fourteen per cent and in France, 12.5 per cent. Clouston some years ago estimated the admission rate in Great Britain and Ireland to be about twenty per cent.

Pollock[11] has made a most interesting study of 1,739 cases of alcoholic psychoses, the total number admitted to the New York state hospitals between October 1, 1909, and September 30, 1912. Seventy-six and five-tenths per cent of these were men, and 23.5 per cent, women. The different conditions represented were as follows: Pathological intoxication, .7 per cent; alcoholic deterioration, 7.7 per cent; delirium tremens, 4.7 per cent; Korsakow's psychosis, 18.8 per cent; acute hallucinosis, 36.7 per cent; chronic hallucinosis, 2.2 per cent; paranoid states, 13.7 per cent; and all other forms, 15.5 per cent. Among the males, acute hallucinosis predominated, while Korsakow's psychosis constituted the largest percentage in the female patients. Of the ascertained cases, .4 per cent showed a defective make-up, 10.3 per cent were inferior and 89.3 per cent were reported as normal. In seventy-four per cent of the cases there was no history of insane heredity. The father of the patient was insane in 3.7 per cent of the series and the mother in four per cent; 25.8 per cent in all had a history of insane heredity. Thirty and five-tenths per cent of the male and thirty-

10. Shadwell, A.: Article on Temperance. The Encyclopædia Britannica, Vol. 26, 1911.

11. Pollock, H. M.: A Statistical Study of 1739 Patients with Alcoholic Psychoses. State Hospital Bulletin. August, 1914.

seven per cent of the female patients had alcoholic fathers and three per cent of the men and 8.8 per cent of the women had alcoholic mothers. Pollock found the percentage of intemperate fathers twice as high in the alcoholic psychoses as in the patients suffering from other conditions. In 94.1 per cent of the cases there was no family history of nervous diseases. Eighty-one and one-tenth per cent of the men and 93.4 per cent of the women came from cities. Of the male patients 26.8 per cent were unskilled laborers; 16.1 per cent of the women were seamstresses, and 11.7 per cent, the wives of laborers. The alcoholic cases constituted fifteen per cent of the male, five per cent of the female, and ten per cent of the total first admissions during the three years in question. The rate of alcoholic psychoses was over twice as great in the foreign born population as in the native.

Three thousand four hundred and sixty-two cases diagnosed as alcoholic psychoses were admitted to the New York state hospitals during a period of eight years (1912 to 1919 inclusive). Of these, pathological intoxication constituted 2.91 per cent, delirium tremens, 5.97 per cent, Korsakow's psychosis, 20.94 per cent, acute hallucinosis, 37.31 per cent, chronic hallucinosis, 3.66 per cent, acute paranoid states, 5.01 per cent, chronic paranoid states, 3.78 per cent, and alcoholic deterioration, 8.34 per cent. The remainder represented miscellaneous types variously described. These figures, of course, relate largely to a time when there were no restrictions on the sale of alcoholic beverages. During 1918 and 1919 the admission rate for alcoholic psychoses in New York was only 4.58 per cent. In Massachusetts in 1919 it was 7.47 per cent, and in twenty-one other hospitals in various states it was 5.04 per cent. A study of 34,935 first admissions to forty-eight hospitals in sixteen different states during 1917, 1918 and 1919 showed the alcoholic psychoses to represent 5.07 per cent of the total number.

With the advent of prohibition the alcoholic psychoses as far as this country is concerned have become a matter of little more than historical interest. The admission rate in the New York state hospitals for 1920 was only 1.9 per cent.

CHAPTER VIII

THE PSYCHOSES DUE TO DRUGS AND OTHER EXOGENOUS TOXINS

Opium is a drug which has been in quite common use for many centuries. According to E. M. Holmes of London, it was known to Theophrastus nearly three hundred years before the Christian era and two different forms were described by Dioscorides in the neighborhood of 77 A.D. Nicander (185 to 135 B.C.) discussed at some length the effects of a "drink prepared from the tears which exude from poppy heads." Pliny in the first century A.D. recorded several cases of suicide by means of opium, which he spoke of as not being a rare occurrence. The drug is said to have been introduced into China by the Arabs in the thirteenth century. An edict prohibiting opium smoking was issued by the emperor Yung Cheng in 1729. It was not until 1909 that the British government agreed to completely prohibit the importation of morphine into China. The sale and use of narcotics has, however, been regulated in India for many years. Morphine, the first alkaloid ever discovered, was isolated and named by Sertürner, a German apothecary, in 1805. Over twenty derivatives of opium have been reported since that time. The real history of morphinomania, according to Erlenmeyer, began in 1864. As far as can be determined, opium was not grown in America until 1865. In 1906 it was estimated that over thirteen millions of people were addicted to opium smoking in China alone.

The literature of medicine contains numerous references to the mental disturbances due to opium and mor-

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phine. Krafft-Ebing[1] says of the habitual user that "Intelligence, it is true, is practically spared, but the highest mental functions—character, ethic feeling, self-control, mental energy, and force—always suffer. . . . In severe cases we find, in addition, weakness of memory, especially defect in the power of exact reproduction, difficulty of intellectual activity that may reach the degree of torpor, occasionally psychic depression reaching even marked dysthymia and taedium vitae, great emotionality, and, in general, profound deficiency of resistive power to affects; and besides, there may be episodically nervous restlessness, excitement, even attacks of fear due to vasomotor causes, and occasionally visual hallucinations." He also describes hallucinatory delirious conditions due to abstinence which strongly suggest alcoholism. In addition to clouded states of the same kind, Paton[2] speaks of the early occurrence, in chronic cases, of marked symptoms of hysteria. Apprehension and anxiety develop with mild suspicions and a moral deterioration very similar to that induced by alcohol. There may be considerable irritability and egotism, with a suggestion of flight of ideas and motor restlessness. Hallucinations and delusions are sometimes present, particularly if alcoholism is a complicating factor. Hyperesthesias, paresthesias and anesthesias are common. Barker[3] also speaks of a degeneration of character evidenced by ethical defects, lying, egotism and loss of memory. Under abstinence symptoms he includes restlessness, anxiety, despair, vomiting and delirium. White[4] regards the neuropathic diathesis as the most important cause of the morphine or opium habit. In habitual users he has noted hallucinated states with a paranoid coloring or a definite

1. Krafft-Ebing, R. von: Text-book of Insanity. Translated by C. G. Chaddock. 1905.
2. Paton, Stewart: Psychiatry. 1905.
3. Barker, Lewellys F.: Monographic Medicine, Vol. 4, 1916.
4. White, William A.: Outlines of Psychiatry. 1919.

delirium. He has also observed delusions of persecution and poisoning, but emphasizes the importance of the gradual mental deterioration.

One of the most elaborate studies ever made of morphinism was that of Erlenmeyer,[5] whose work on this subject reached nearly five hundred pages in its third edition. The mental disturbances associated with intoxication he divides into two groups—transitory and permanent. The former includes anxious states, hallucinations of vision and stuporous attacks; the latter, the intellectual and emotional deteriorations already described. There is a definite character change strongly suggesting "moral insanity," an artificial "senium praecox" being induced. He also refers to distinct psychoses resulting from chronic morphinism, the most common one being of the paranoid variety. Abstinence symptoms of sudden development include collapse and delirium. Restless anxiety and insomnia may usher in a mild delirious condition. Of these he described two forms,—one, a quiet, partially clouded dream state and another, with excitement, elation and hallucinations. The first form is the more common. The second is usually of short duration but may last for several weeks or even months, often manifesting paranoid ideas.

Kraepelin[6] calls attention to the important fact that morphine stimulates mental activities as well as inhibiting psychomotor processes, and is not therefore a logical drug for the production of sleep. The habitué feels himself capable of much greater exertions but is handicapped by an inhibition of will power. This psychological mechanism determines the difference between the intoxication of morphine and that of alcohol. Nissl found the cortical cells of dogs poisoned with morphine decreased in size but not destroyed. The stainable sub-

5. Erlenmeyer, A.: Die Morphiumsucht und ihre Behandlung. 1887.
6. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

stance was rarefied and weakly stained, the achromatic substance, on the other hand, being unusually prominent. In chronic morphinism Kraepelin found memory uncertain, mental capacity diminished and fatigability increased. There are alternating periods of comparatively good health and dull somnolence with exhaustion or nervous restlessness. The mood is variable,—depressed, discouraged, hypochondriacal, irritable, or even confident and overbearing. Anxious states occasionally occur at night and suicidal attempts may be made. Character changes are also described by Kraepelin. The patients become complaining, oversensitive to pain and to opposition, are indolent, irresolute, irresponsible and neglect their work. Their interest is more and more confined to the drug. Their untruthfulness and deceitfulness are well known. Sleep is much disturbed, often by visual hallucinations. Phantastic delusional ideas are also manifested. Paresthesias and hyperesthesias are common. The reflexes are active and usually increased. The gait is unsteady or even ataxic. Speech disturbances, paralysis of the muscles of the eye, diplopia and loss of accommodation have been noted. A typical Korsakow's complex was observed by Heymann. Appetite is lost, bodily weakness and loss of weight appear and sugar is often present in the urine. Perspiration, dizzy spells, confusion and stupor may be caused by circulatory disturbances. Sexual power is diminished, and menstrual disturbances are frequent. These symptoms may appear early or may not develop for years, depending on the individual case. Kraepelin also describes forms similar to dipsomania in alcoholics. He attributes these to epileptic or hysterical constitutions. Many of his cases were decidedly psychopathic with tendencies to abuse the use of alcohol, tobacco and coffee. Of thirty-eight patients observed by him, nineteen used only one drug, ten of them were addicted to two, eight others to three,

and one patient to as many as five. Under abstinence symptoms he includes exhaustion, restlessness, yawning, sneezing, anxiety, chilliness, oppression, sense deceptions and pains in various parts of the body. The patient is sleepless and sometimes goes into an excitement with suicidal inclinations. In some cases a condition develops whch markedly resembles delirium tremens. In others, hallucinatory symptoms are more marked. These manifestations may last for several days or for a few weeks. Hysterical dream states with hallucinations and convulsive seizures may also occur.

Cocaine was first isolated by Gardeka in 1855, but was given the name it now bears by Niemann. It did not come into extensive use until many years later and was not employed generally in ophthalmological practice until about 1884. Freud in 1885 called attention to the fact that small doses of cocaine produced a stimulation of the mental activities with euphoria and an increased capacity for both mental and physical work. Mannheim,[7] who reviewed ninety-nine cases of cocaine poisoning in 1891, found that the first symptoms were drowsiness and deep sleep, occasionally followed by coma and collapse. He observed that some patients became restless and excited, dizzy, laughing and crying alternately, while others were very talkative and uneasy, walking up and down with a drunken gait. Usually he found a complete amnesia afterwards.

The first study of psychoses due to cocaine was made by Erlenmeyer[8] in 1886. As he afterwards modestly observed, "This first report on cocomania, which was founded on thirteen cases, completely exhausted the subject, and nothing essential has been added to the symptomatology then published." He found that it was al-

7. Mannheim, Paul: Ueber das Cocain und seine Gefahren, etc. Zeitschrift für klinische Medicin. 1891.

8. Erlenmeyer, A.: Cocainsucht. 1886. Abstract in Zentralblatt für Nervenheilkunde, Psychiatrie, etc., by Goldstein. November, 1887.

most always combined with the morphine habit. This was probably due to the fact that cocaine, at one time, was used extensively in the treatment of morphinism. Although the assimilation of food is not affected and gastritis was not a symptom, Erlenmeyer usually found a great decrease in bodily weight, as much as twenty to thirty per cent in some cases within a few weeks. Sleep is much disturbed and insomnia the rule. The most common form of mental disturbance he found to consist of attacks of violent excitement accompanied by delusions of persecution. Dangerous, impulsive assaults may occur. Very often, however, there were transitory confusional states with hallucinations of hearing and vision, succeeded by a mental deterioration and loss of memory. Visual hallucinations usually appear early. A common and peculiar symptom is the appearance of dark spots and points on a white background, attributed by Erlenmeyer to multiple scotomata. Auditory hallucinations he also found to be frequent. Sensory deceptions give rise to peculiar ideas such as the presence of the "cocaine bug" which the patient often tries to catch. Volubility is another characteristic feature of the disease which he refers to. As abstinence symptoms he describes forms of depression, with weakness of will power. Barker refers to psychoses of an acute hallucinatory confusional type as a result of cocainism.

Krafft-Ebing speaks of episodic toxic deliria with visual and auditory hallucinations resembling those of alcohol and accompanied by delusions of persecution or jealousy with visions of multitudes of small animals, etc. He has not observed delirious conditions due to abstinence.

In acute cocainism Kraepelin[9] finds an increased pulse rate, a lowering of blood pressure and the appearance of an excitement of the intoxication type with an

9. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

agreeable sensation of warmth and well-being. There is an initial motor excitement followed eventually by weakness. This is a somewhat similar reaction to that caused by alcohol, but it is more marked. Small doses cause the habitué to feel elated, talkative and inclined to prolific writings. He feels a greatly increased efficiency but does not show a corresponding productivity. Larger doses cause delirious excitement with a tendency to sudden collapse. After a prolonged use of the drug a condition of nervous excitement ensues, with an increasing susceptibility to intoxication, a mild flight of ideas, a diminished capacity for mental exertion, loss of will power and failure of memory. The patient is busy with entirely useless activities, quite voluble, and writes incessantly. He becomes unreliable, forgetful, disorderly and careless in his conduct. The mood alternates between one of well-being, irritability, suspicious anxiety and emotional dulness. Kraepelin speaks of the great loss of weight, increased reflexes, dilated pupils, rapid pulse, etc. Insomnia is a common symptom. The characteristic psychosis of cocaine, however, in his opinion is a paranoid condition somewhat resembling the alcoholic forms. The onset is usually sudden, with irritability, suspicion and anxious restlessness, together with the sudden development of hallucinations of various kinds. Auditory hallucinations are particularly numerous and are very active. The patient's surroundings appear strange and unreal. He sees all kinds of pictures of the most realistic type. Tactile hallucinations are very common. The patient often shoots at his imaginary persecutors or attempts suicide to escape them. A typical symptom is the appearance of delusions of jealousy. With all of this the patient is usually well oriented. Only occasionally is there a clouding of consciousness and confusion. Insight is, however, always lacking. Even with a clear sensorium the delusional ideas are firmly retained. The

mood is excited, irritable, sometimes angry and exasperated, but most frequently depressed and suspicious. The conduct is characterized by restlessness and uncertainty. There is usually a marked volubility suggesting a conscious delirium at times. The whole development of these conditions is rapid, often within a few weeks. They disappear as quickly in many instances.

Chronic cocainism is very similar to the alcoholic conditions. From a symptomatic point of view, however, the paranoid cocaine psychoses occupy relatively an intermediate position between alcoholic delirium and the paranoid states.

In experiments on dogs Nissl found a stainability of the achromatic substance in the neurones, a beginning shrinkage of the cell nuclei and a slight increase of leucocytes in the pia and vessels.

Chloral-hydrate, which has been employed medicinally since 1869, is much less frequently a cause of mental disturbance than morphine or cocaine. Krafft-Ebing describes its use combined usually with other drugs as causing moroseness, depression and mental dulness. He speaks, too, of a delirium due to sudden withdrawal. This condition, he says, may also be caused by paraldehyde. The craving for chloral, on the part of those who have acquired the habit, is much less intense than that for morphine or cocaine. Other drugs are very readily substituted for that reason. A prolonged use leads to digestive disturbances, constipation alternating with diarrhea, jaundice, flushing of the face, congestion of the conjunctiva, fulness of the head, palpitations, weak pulse, dyspnea and general malnutrition with erythematous, urticareous or pustular skin eruptions, etc. Hyperesthesias, anesthesias, paresthesias, pains in the limbs, sensations of heat and cold, tremors, occasional loss of muscular power and sometimes ataxia appear. The reflexes are usually decreased. Epileptiform con-

vulsions have been observed although they are infrequent. The mental disturbances of chloral have been studied by Wilson.[10] He describes the habitué as "dull, apathetic, somnolent, disposed to neglect his ordinary duties and affairs. He passes much of his time in a state of dreamy lethargy or in deep and prolonged sleep, from which he awakes unrefreshed and in pain." Headache is an almost constant symptom. It is associated with "confusion of thought, inability to converse intelligently or to articulate distinctly, and other evidences of cerebral congestion." Vertigo is also common. The mental state is characterized by dulness, apathy and confusion, alternating with periods of irritabilty and restlessness. The depression is not so marked as in morphinism. Inability to concentrate the mind, loss of memory, and intellectual enfeeblement are terminal conditions. Occasionally in the worst cases hallucinations, delusions, clouding and states of excitement are observed. Abstinence symptoms are headache, insomnia, neuralgia, pains in the limbs, nervousness, restlessness and formication. A delirium similar to that of alcoholism has been referred to by various writers.

Casamajor[11] has described two types of mental disturbance due to the use of bromides,—a condition of apathy with dulness and an active delirium. The first is characterized by apathy, dulness, somnolence, weakness and failing memory, and is often observed in epileptics who have been subjected to protracted periods of bromide treatment. He has also reported toxic deliria showing marked hallucinations with psychomotor unrest, fabrications and paraphasia. This may be associated with unequal, sluggish pupils, increased or unequal patellar re-

10. Wilson, James C.: The Opium Habit and Kindred Affections. System of Medicine. Pepper. 1886.

11. Casamajor, Louis: Bromide Intolerance and Bromide Poisoning. Journal of Nervous and Mental Diseases. June, 1911.

flexes, tremors, ankle clonus and an unsteady gait—a general condition suggesting paresis. Hoch[12] also reported cases showing hallucinations, clouding, disorientation, amnesia, fabrications and aphasic disturbances, together with physical signs simulating general paresis. O'Malley and Franz[13] described somewhat similar symptoms in a case showing dilated sluggish pupils, exaggerated knee-jerks, ankle clonus, tremors and unsteady gait, etc. The mental disturbance was characterized by a confused dreamlike state, with hallucinations, memory defect, a disturbance of attention, and a marked tendency to fabrication. The fabrication in their opinion suggested a delirious origin rather than the Korsakow complex.

The first references to the psychoses caused by lead intoxication were apparently those of Dehäne in 1771. Tanquerel des Planches published his "Encephalopathia Saturnina" in 1836. He recognized three forms of this condition,—the delirious, the comatose and the convulsive. Edsall[14] describes as encephalopathies all of the cerebral symptoms due to chronic lead poisoning. In addition to transitory hemiplegias, aphasia and choreiform movements, he refers to the occurrence of hysterical manifestations, such as hemianesthesias associated with outbursts of excitement. Coma and clouded states often occur. These may be accompanied by convulsions. In the delirious form there may be a marked excitement with psychomotor activity. Hallucinations are common, particularly in alcoholic cases. Delusions of persecution are not infrequent. There is usually a rise of temperature throughout the attack. The delirium may

12. Hoch, August: A Study of Some Cases of Delirium Produced by Drugs. Review of Neurology and Psychiatry. February, 1906.
13. O'Malley, Mary, and Franz, Shepherd Ivory: A Case of Delirium Produced by Bromides. Bulletin No. 1. Government Hospital for the Insane. Washington, 1909.
14. Edsall, David L.: Chronic Lead, Arsenic and Other Forms of Poisoning. Modern Medicine. Osler and McCrae. Vol. 2, 1914.

last from a few days to several weeks. Symptom complexes strongly suggesting general paresis have been reported. Krafft-Ebing speaks of psychoses characterized by mental depression, feelings of oppression, irritability, mild delusions of persecution and terrifying hallucinations. Epileptiform attacks, paralyses and tremors are also mentioned. He refers to deliria which may arise spontaneously or follow an initial stupor, and speaks of the chronic lead psychoses as toxic hallucinatory confusional conditions. Six cases of this nature were reported by Bartens in 1887. Oppenheim has occasionally found hysterical symptoms associated with chronic lead poisoning. Rayner [15] found mental disturbances preceded by such premonitory symptoms as headache, restlessness, disturbed sleep, terrifying dreams, tinnitus aurium, flashes of light, difficulty of thought, and depression. This terminated in a few days in a delirium characterized by anxiety and visual hallucinations. Other cases showed a more marked depression and stupor, sometimes alternating with delirium and violent excitement, accompanied by hallucinations and speech defects. Amaurosis and convulsions are spoken of frequently as common symptoms. Conditions similar to general paresis have been noted by various observers.

There have been very few contributions to medical literature on the subject of psychoses caused by arsenic. In discussing forms of poisoning due to that drug Edsall expressed the opinion that "marked psychic symptoms are unusual." Casamajor makes the statement that "in very severe cases memory disturbances have been noted, and in some the typical Korsakow polyneuritic psychosis." According to Oppenheim a rise of temperature associated with a delirium may be observed at the onset of arsenical poisoning and may also occur later in the disease. Psychoses due to arsenic were not referred

15. Rayner, H.: Journal of Mental Science. 1880.

to by Krafft-Ebing, Arndt, Schüle, Ziehen or Kraepelin.

Edsall[16] mentions as the symptoms of chronic mercurial poisoning, headache, restlessness, mental depression and weakness. Most striking features are tremors and a peculiar emotional disturbance referred to as "erythism." Tremors of the lips and facial muscles are common and speech disturbance and choreiform movements have been noted. Symptoms suggesting neurasthenia and hysteria have also been reported. Naunyn has described excitements due to mercury characterized by anxiety and fears with hallucinations and sleeplessness. He also speaks of manic attacks, depressions and mental deterioration as associated conditions.

Argyria or chronic silver poisoning is said to be accompanied often by a marked sensitiveness and occasional episodes of actual depression due to the discoloration and pigmentation of the face.

Psychoses due to various gases are occasionally encountered. Illuminating gas is a rather common means of suicide, as is shown by the newspapers. It has been found that the cause of death in these cases is carbon monoxide, which is also often reported as responsible for the asphyxiation of workmen in garages and other places where gasoline motors are used. This occasionally results from the improper ventilation of laundries, engine rooms, gas plants, iron foundries, etc. These conditions have been very fully studied by O'Malley.[17] The mental disorders due to carbon monoxide are described as being characterized by a sudden attack of confusion and clouding associated with a period of complete amnesia. There may be disturbances of attention and Korsakow's

16. Edsall, David L.: Chronic Lead, Arsenic and Other Forms of Poisoning. Modern Medicine. Osler and McCrae. Vol. 2, 1914.
17. O'Malley, Mary: A Psychosis Following Carbon-monoxide Poisoning with Complete Recovery. American Journal of the Medical Sciences. June, 1913.

psychosis is sometimes strongly suggested, with memory impairment and tendencies towards fabrication. This condition may be transitory or last for many months. On recovery the patient usually has no recollection of any events taking place after the time of the poisoning. Immediately following the initial unconsciousness there may be excited periods or delirious states with aphasic disturbances. In chronic cases delusions of persecution are often observed. The psychosis frequently does not develop until several weeks or months after the actual poisoning. Several observers have referred to a mask-like expression of the face, with emotional indifference, apathy and outbursts of laughter. The mood has been described as characterized by emotional instability. O'Malley calls attention to the important fact that the mental disturbance may have been the cause of suicidal attempts rather than a result of the gas poisoning. Confused delirious states due to carbon monoxide poisoning, also conditions resembling Korsakow's disease, have been described by Kraepelin. Several cases somewhat similar to that described by O'Malley have been observed at the Boston State Hospital.

An analysis of the statistics of American institutions shows that psychoses due to drugs and other exogenous poisons are quite rare in this country. They represented only .39 per cent of the admissions to the New York state hospitals during a period of eight years. The number admitted to Massachusetts hospitals is still less. In a total of 70,987 first admissions to forty-eight hospitals in sixteen different states there were only 324 cases due to exogenous poisons. This constituted .65 per cent of the total number admitted. It is interesting to note that during a period of eight years, when 49,640 cases were admitted to the New York state hospitals, 154 cases of psychosis due to opium or morphine were reported, five due to metallic poisons, eighteen caused by gases, and nine

of types unspecified. No case of uncomplicated cocainism was reported during that period of time.

The 314 drug habitués in the state hospitals of the entire country as shown by the census of January 1, 1920, and reported by the National Committee for Mental Hygiene, represented .15 per cent of the mental cases under treatment in those institutions on the same date. The 808 drug addicts shown by the same census in all of the institutions of the United States, both public and private, represented .34 per cent of the mental cases reported by them. The fact that the private hospitals showed 4.5 per cent of drug cases in the same census is significant. It indicates that these cases are largely cared for in institutions of that type, and furthermore, that their number is very small.

The result of the investigations made in 1919 by a committee appointed by the Secretary of the United States Treasury is of great interest in view of the number of drug psychoses treated in our state hospitals. The committee's report [18] shows an estimated annual per capita use of opium in Italy of 1.25 grains; Germany, two grains; France, three; Holland, 3.5; and the United States, thirty-three grains. More opium is consumed here than in any other country in the world. The committee was of the opinion that ninety per cent of it was used for other than medicinal purposes. The estimated number of habitués in New York City at that time as reported by the City Commissioner of Health was 103,000. The questionnaire sent out by the committee to physicians registered under the Harrison Act showed that the number of cases under treatment for morphinism in various parts of the country was as follows:—California, 3,338; Connecticut, 11,740; Illinois, 8,218; Indiana, 8,438; Massachusetts, 14,770; New Jersey, 5,900; New

18. Drug Addiction in the United States. Journal of Nervous and Mental Diseases. August, 1920.

York, 37,095; Pennsylvania, 10,202, etc. The estimated number of drug users in the United States was given at one million, and the amount of money expended by them annually was said to approximate sixty-one million dollars. In view of these statements the number of psychoses reported in the hospitals is astonishing.

CHAPTER IX

THE PSYCHOSES WITH PELLAGRA

The origin of pellagra is shrouded in mystery. Although first described by Casal, the name now attached to the disease was suggested by Frappoli in 1771. He referred to it as of ancient origin at that time and probably identical with the "pellarella" reported in Milan in 1578. Niles [1] is of the opinion that the peculiar malady existing among the American Indians and mentioned by Baruino in 1600 was almost certainly pellagra. It is interesting to note that he attributed it to the use of corn. The disease was observed in Spain by Gaspar Casal in 1735 and appeared in Italy about twenty-five years later. Of the 4,404 admissions to the St. Clement's Hospital at Venice between 1873 and 1880 over thirty per cent showed symptoms of pellagra. In 1912, according to Niles, the number of cases in Italy was estimated at approximately one hundred thousand. The disease was apparently first reported in France in 1818. It has been common in Egypt since 1892 at least and is said to have occurred there as early as 1847. Cases were reported in this country by John P. Gray at the Utica State Hospital and by Tyler at the McLean Hospital, in Somerville, Massachusetts, in 1863. It is now thought to have been very common in the Andersonville and Libby prisons during the civil war, although not diagnosed as such at the time.

Few cases were reported in this country prior to 1907, when it was found to be present at the Columbia, South Carolina, State Hospital by Babcock. Pellagra

1. Niles, George M.: Pellagra. 1912.

constituted seven per cent of the admissions to that institution in 1908, fifteen per cent in 1909, twenty in 1910, over twenty-seven in 1911 and twenty-six per cent in 1915. Sixty-one per cent of the deaths in the hospital during the latter year were due to that disease. The health officer of the state reported four hundred cases in South Carolina in 1909 and six thousand in 1914. Babcock is now of the opinion that pellagra undoubtedly existed for twenty years or more at Columbia before its significance was known. In 1910 the disease was found to be present in thirty different states and represented about three thousand cases.[2] Of these the largest numbers were in Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Texas, and Illinois. The importance of this question had already been recognized and a national conference was held on the subject at Columbia in 1909. During the same year the governor of Illinois appointed a commission to make a thorough study of pellagra in that state. The disease has been made the subject of elaborate investigation and study by the United States Public Health Service and several publications have been issued by that department.[3]

Notwithstanding the extended discussion and scientific research of the last few years, the question as to the definite etiology of pellagra has not as yet been positively settled. The maize or Indian corn theory was first advocated by Mazari in 1810. He believed the symptoms to be due to a deficiency in gluten. Sette in 1826 attributed the disease to a fungus (scimelpige) growing on corn and producing a poison from the oil in the grain. The smut of corn, "Ustilago Maydis," was suggested as a possible factor by Pari in 1860. In 1872 Lombroso

2. Babcock, J. W.: The Prevalence and Psychology of Pellagra. Transactions of the American Medico-Psychological Association, 1910.
3. Studies in Pellagra. U. S. Treasury Department. Hygienic Bulletin. No. 106. January, 1917.

formulated his toxic theory: "In pellagra we are dealing with an intoxication produced by poisons developed in spoiled corn through the action of certain microorganisms, in themselves harmless to man." He also announced the discovery of "pellagrosein," a toxic substance extracted from spoiled corn. In 1902 Ceni advanced the theory that the disease was caused by the action of certain moulds such as the aspergillus fumigatus and flavescens. The Illinois Pellagra Commission in 1911 came to the conclusion after an elaborate investigation of the subject that the primary etiological factor involved was a living microorganism of unknown nature, that the probable source of infection was through the intestinal tract and that a deficient amount of animal protein in the diet probably acted as a predisposing cause. Funk in 1914 suggested a vitamin deficiency in the diet brought about by the consumption of overmilled corn. Voegtlin [4] in the same year expressed the opinion that the disease was essentially a chronic intoxication,—"While the agents at work in this intoxication are as yet unknown, I am inclined to believe that toxic substances exist in certain vegetable foods, not necessarily spoiled, which, if consumed by man over a long period of time, may produce an injurious effect on certain organs of the body. . . . It is probably more than a mere coincidence that the population of that part of the world in which pellagra is endemic lives on a mainly vegetable diet."

In 1916 a study was made by Koch and Voegtlin [5] of the chemical changes found in the nervous system in pellagra which was very significant in its results. They found an increase in water with a decrease in proteins and

4. Voegtlin, Carl: The Treatment of Pellagra. Journal of the American Medical Association. September 26, 1914.
5. Koch, M. L., and Voegtlin, Carl: Chemical Changes in the Central Nervous System in Pellagra. Hygienic Laboratory Bulletin No. 103, February, 1916.

lipoids, the latter reaction being attributed to a degeneration in the white matter. There was also a relative increase in the cholesterol content, looked upon as a compensatory protective function tending to replace the loss in lipoids. The most marked chemical alterations were found in the cord. On feeding monkeys and rats with an exclusive vegetable diet, changes in the chemical reaction of the brain and cord of almost exactly the same type were brought about experimentally.

Goldberger[6] in 1916 made an interesting report of a series of investigations carried on by the United States Public Health Service at Jackson, Mississippi. A large number of cases of pellagra were treated by largely supplementing the dietary with fresh meats, milk and leguminous vegetables. The carbohydrate content was reduced at the same time but corn was not entirely discontinued. Of 209 cases studied, 172 remained under continuous observation with a recurrence of symptoms in only one case. In a similar experiment made at the Georgia State Sanitarium seventy-two patients, all of whom had shown attacks previously, were treated for a year without symptoms. A number of volunteers at the Mississippi State Penitentiary were given a test diet consisting of wheat flour, corn meal, grits, cornstarch, white polished rice, granulated sugar, cane syrup, sweet potatoes, pork fat, cabbage, collards, turnip greens and coffee. Of the eleven convicts receiving this diet, six developed a typical dermatitis with slight nervous and gastrointestional symptoms. The results of these investigations were not offered by the United States Public Health Service as being conclusive and incontrovertible evidence as to the etiology of pellagra, which must still be looked upon as being somewhat in doubt. The dietetic factors

6. Goldberger, J.: Pellagra: Causation and a Method of Prevention: A Summary of Some of the Recent Studies of the Public Health Service. Journal of the American Medical Association, February 12, 1916.

concerned in the production of the disease have been under serious consideration for a century or more.

This information was supplemented by a study of pellagra in the general population of the cotton mill communities in South Carolina.[7] In comparing the dietaries of pellagrous households with those of the families escaping infection it was found that the former consumed less meat, milk, butter, cheese and eggs. The value of their diet in calories and proteins was lower. The proteins contributed, moreover, were more largely from cereals, peas, beans, etc. The carbohydrate content was also lower. They concluded that the particular points involved were:—

"1. A physiologically defective protein supply,

"2. A low or inadequate supply of fat-soluble vitamin,

"3. A low or inadequate supply of water-soluble vitamin, and

"4. A defective mineral supply."

They were also of the opinion that the disease could be prevented by "including in the diet an adequate supply of animal protein foods (particularly milk, including butter, and lean meat)."

Roberts[8] in 1920 made a study of twenty-five cases of pellagra encountered in private practice. In every instance the disease developed in families provided with an abundance of food of all kinds. An analysis of the actual consumption, however, showed that "not one of the patients ate a well rounded, balanced diet of meat, milk, eggs or wholesome vegetables." Either they were suffering from a lack of nourishment in every case or

7. Goldberger, J., Wheeler, G. A., and Sydenstricker, Edgar: A Study of the Diet of Nonpellagrous and of Pellagrous Households. Journal of the American Medical Association. September 21, 1918.

8. Roberts, Stewart R.: Types and Treatment of Pellagra. Journal of the American Medical Association. July 3, 1920.

they were eating practically the same diet that Goldberger used experimentally in producing pellagra.

As defined by Barker [9] pellagra "is a disease characterized by peculiar cutaneous, digestive, nervous and mental disturbances, usually running a chronic course, with periodic exacerbation, but sometimes developing acutely and proceeding quickly to a fatal termination." He speaks of the disease as developing during the winter months usually with neurasthenic manifestations—fatigability, insomnia, slight vertigo, and feelings of apprehension, followed by digestive disturbances later in the spring. The parts of the skin surface exposed to the sun develop an erythema followed by a dermatitis. Nervous and mental symptoms may appear later. In some cases the disease tends to recur every spring. The skin lesions have been described as a characteristic "mask" shown on the face, the pellagrous collar, a bandlike eruption on the neck, Casal's "necklace" extending downwards over the sternum, the pellagrous "butterfly," "gauntlets," etc. The more common digestive disorders are stomatitis and glossitis, gastric disturbances and diarrhea. Neurological symptoms observed include hyperesthesia, paresthesia, anesthesia, tremors, paralyses, muscular pains, increased reflexes and occasional convulsions.

The literature of pellagra and its associated mental disturbances has been elaborately reviewed by Babcock.[10] The following references appear in a comprehensive study of this subject made by him in 1910. Griesinger [11] described the pellagrous psychoses as characterized by a vague, incoherent delirium, accompanied by loquacity and loss of memory without any violent

9. Barker, Lewellys F.: Monographic Medicine, Vol. 4, 1916.
10. Babcock, J. W.: The Prevalence and Psychology of Pellagra. Transactions of the American Medico-Psychological Association, 1910.
11. Griesinger, W.: Pathology and Therapeutics of Mental Diseases. 1867.

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excitement or special disorder of the intelligence. The depression gradually develops into a torpor of all the mental powers together with muscular weakness, a condition resembling general paresis. Mongeri[12] states that the psychoses usually begin with a period of depression accompanied by hypochondriacal ideas. This is followed by confusion and hallucinations of hearing. Delusions of persecution appear, with a marked tendency to suicide by drowning. Crimes of various kinds may be caused by the paranoid condition which usually terminates in deterioration. In speaking of chronic and acute forms Bianchi[13] says: "The former is characterized by general depression, melancholia, confusion, slow dementia, paresthesias and ataxic gait. Contractures and subsulti are absent, although in most instances the reflexes are exaggerated. In the acute form we have rapid elevation of temperature, 39° to 41° C.; intense neuromuscular excitement, subsulti, contractures, muscular rigidity, exaggerated reflexes and confusion with phases of exaltation. There are numerous intermediate forms in which we observe a great variety of psychical phenomena, and also alternations of excitement and depression. Phases of remission and of apparent recovery are observed, especially at certain seasons." Régis[14] is quoted as follows: "It is recognized that the most common form of psychosis in pellagra is mental confusion with melancholy or dreamy delirium. This occurs more or less markedly in most of the cases. It is manifested by inertia, a passivity, an indifference, a considerable torpor; by insomnia, hallucinations often terrifying, both of sight and hearing; by delirious conceptions with fixed ideas of hopelessness, of damnation, of fear, anx-

12. Mongeri, L.: Malattie Mentali. Milan, 228. Quoted by Babcock.
13. Bianchi, Leonardo: A Textbook of Psychiatry. Translated by James H. Macdonald. 1906. Quoted by Babcock.
14. Régis, E.: Precis de Psychiatrie. 1909. Quoted by Babcock.

iety, persecution, poisoning; of possession by devils and witches, of refusal of food, and so marked a tendency to suicide, and to suicide by drowning, that Strombio gave it the name hydromania. This melancholy depression, which can reach, in certain cases, even to stupor, is always based upon a foundation of obtusion, of intellectual hebetude, and of considerable general debility, which becomes permanent and terminates by degrees in dementia, in proportion as the pellagrous cachexia makes new progress. It is accompanied sometimes by a polyneuritis. The mental confusion of pellagrins can, in place of changing directly into dementia, turn to a chronic mental confusion. One may observe in pellagra, as in every grave intoxication, a morbid state resembling general paresis (pellagrous pseudo-general paresis). This occurs especially in the cases where instead of habitual melancholy ideas, the patients present ideas of satisfaction and of wealth." Procopiu[15] found his patients "sad, apathetic, silent; in the more advanced stage they are melancholy, and fall sometimes into an absolute mutism, or respond with difficulty, and have the air of not understanding what is said to them. Sometimes this melancholy is accompanied with stupor, and leads the poor pellagrins into dementia." He also speaks of the occurrence of sudden outbursts of manic excitement. Tanzi[16] refers to the existence of both pellagrous mania and melancholia but speaks of a characteristic amentia "which manifests itself acutely in loss of time and place, loss of memory, confusion, hallucinations, and paresthesias, from which there arise morbid impulses and delusions. Pellagrous amentia, often assumes a depressive form, which simulates melancholia, and in some cases either from time to time, or throughout the whole

15. Procopiu, G.: La Pellagre. Paris. 1903. Quoted by Babcock.
16. Tanzi, Eugenio: Textbook of Mental Diseases. Translated by Robertson. 1909.

course of the psychosis, it is accompanied by exaltation, which gives it some resemblance to mania."

Gregor[17] in 1907 made a careful analysis of seventy-two cases. He classified these in seven groups: 1. Neurasthenia; 2. Acute stuporous dementia; 3. Amentia (acute confusional insanity); 4. Acute delirium; 5. Katatonia; 6. Anxiety psychoses; and 7. Manic-depressive insanity. The neurasthenic cases (9.72 per cent) exhibited headache, pain in the gastric region, vertigo, paresthesia and lassitude, with a sense of unrest and anxiety as well as ill-defined apprehensions. There was a sense of mental incapacity and feeling of illness, together with a mild depression and hypochondriacal tendencies. The cases diagnosed as acute dementia (13.88 per cent) were of the same general type but with more advanced symptoms. These showed a decided stupor, tending to remission, deep mental depression, a sense of insufficiency and "peculiar subjective troubles." The tendency to suicide was prominent and caused this group to be called melancholia by some. Many cases showed the gradual development of an affectless stupor. Catatonic symptoms and stereotypies occasionally occurred. Memory disturbances were well marked in this form. The psychoses disappeared invariably with the symptoms of the pellagra. The Amentia group (44.44 per cent) included long-continued cases with remission and intermissions. Terrifying hallucinations and violent motor excitement appeared frequently, followed by a stupor which was sometimes interrupted by delirium. Hallucinations were usually present and some had dream states. These cases often terminate unfavorably. Acute delirium constituted 2.7 per cent of the seventy-two cases, and katatonia occurred in 13.8 per cent. These cases passed rapidly into dementia. Anxiety psychoses (4.16 per cent) were diagnosed in a few instances, but were

17. Gregor, A.: Jahrb. Psychiat. Neurol. Leipsig, 1907.

complicated by occasional stupors. Two and seven-tenths per cent of the cases were classified as manic-depressive insanity. Mobley, according to Babcock, found the following types represented at the Georgia State Sanitarium:—1. Acute intoxication psychosis, with psychomotor suspension; 2. Infective exhaustive psychosis, with psychomotor retardation or excitation; 3. Symptomatic melancholia with psychomotor retardation; and 4. Manic-depressive psychoses.

Singer[18] in 1915 suggested the following classification of the psychoses associated with pellagra:—

1. Disorders directly due to the pellagra toxin:
   (a) Symptomatic depression; (b) Delirious pictures.
2. Disorders based on peculiarities in personal make-up, the attack of "insanity" being precipitated by pellagra;
   (a) Manic-depressive disorders; (b) Hysteria; (c) Psychasthenia; (d) Dementia praecox; (e) Paranoic developments; and
3. Disorders due to definite brain changes with pellagra merely as a complication:
   (a) Arteriosclerotic dementia; (b) Senile dementia; (c) Presenile psychoses; (d) General paralysis of the insane.

He found mental disturbances of some kind in about forty per cent of the cases examined. As a general rule they appeared after the patient had shown evidence of several attacks of the disease. The psychoses occurred in men between the ages of twenty-one and forty and in women between forty-one and sixty. About ninety-five per cent of the mental disorders were to be attributed directly to the effect of the toxin. The remaining five per cent represented individuals with a defective nervous organization or were purely incidental complications.

18. Singer, H. Douglas: Mental and Nervous Disorders Associated with Pellagra. Archives of Internal Medicine. January, 1915.

Singer found peculiarities in make-up associated frequently with a predisposition to pellagra. He also expressed the opinion that chronic forms of "insanity" are very rarely caused by the disease.

Sandy[19] made a study of 160 cases at the state hospital at Columbia, South Carolina, in 1916 based on a classification of psychoses quite similar to the one now in use. He found that thirty-five per cent of these belonged to the infective exhaustive group. As a matter of fact, this is the conclusion almost anyone would reach from reading the observations of the earlier writers. These cases were usually characterized by "more or less marked delirium, being accompanied by some confusion and disorientation, there frequently being also hallucinations accompanied by more or less agitation and restlessness." Physically he found, besides well marked symptoms of pellagra, evidences of severe exhaustion, loss of weight, emaciation, fever, sordes, anorexia, and typhoid facies. "In the milder forms of these 'delirious pictures,' as Singer calls them in his contribution to the report of the Thompson-McFadden Pellagra Commission, and as he pointed out, the periods of clouding (of consciousness) may be quite brief and episodic. In such cases in the intervals when the consciousness is practically clear, the general attitude is one of symptomatic depression." Sandy found characteristic manic-depressive forms in eleven per cent of the series reviewed. The depressed types were more common. Here he found retardation of speech and action with a dearth of ideas. In these cases he looks upon pellagra as being merely an exciting etiological factor. The prognosis was not so favorable, however, as it usually is in manic-depressive psychoses, death often being due to the development of central neuritis. In three per cent of the total he found

19. Sandy, William A.: Psychiatric Aspects of Pellagra. Transactions of the American Medico-Psychological Association. 1916.

what could only be described as symptomatic depressions, the emotional condition not being so marked as one would expect in the manic-depressive group. In twelve per cent a diagnosis of dementia praecox was made. In these the pellagra was merely an incident and not an etiological factor.

In several patients Sandy found a symptom complex strongly suggestive of general paresis, thus confirming the findings of other observers. These showed speech and writing defects, absent or sluggish pupillary reaction, swaying in the Romberg position, altered deep reflexes, disorientation, memory disorders and other evidences of deterioration. The Wassermann reactions were negative in both the blood and spinal fluid tests and no lymphocytosis was shown on cell counts. These cases he thinks belong in the infective exhaustive group, and usually die of central neuritis, a condition already referred to and described originally by Turner and Meyer. Sandy also found pellagra associated with various senile psychoses. This group constituted ten per cent of those studied. Fourteen per cent of the series he left unclassified owing to lack of history, etc. Some of these showed simple deterioration, others suggested neurasthenia, and some, general paresis. Of the remaining cases three were epileptic imbeciles, three, constitutional inferiority with episodes of some kind, and three were not insane. Cases associated with chorea and hysteria were also observed. On analyzing these most important findings the assumption would seem to be warranted that pellagra is an incident in certain psychoses—(senility and dementia praecox), that it is a precipitating factor in certain cases (manic-depressive), and that the characteristic conditions due to the disease are toxic and assume the infective-exhaustive form, occasionally simulating general paresis.

The policy of the Association's committee on statis-

tics in the differentiation of these conditions is shown by the following quotation on this subject from the last edition of the manual:—

"The relation which various mental disturbances bear to the disease pellagra is not yet settled. Cases of pellagra occurring during the course of a well established mental disease such as dementia praecox, manic-depressive insanity, senile dementia, etc., should not be included in this group. The mental disturbances which are apparently most intimately connected with pellagra are certain delirious or confused states (toxic-organ-like reactions) arising during the course of a severe pellagra. These are the cases which for the present should be placed in the group of psychoses with pellagra."

A study of recent statistics would tend to show that pellagra is not at this time a factor of importance in our institutions. In Massachusetts in 1919 the admission rate for this disease was .33 per cent. In New York state hospitals during a period of eight years it was only .03 per cent. In twenty-one hospitals in fourteen other states it amounted to only 1.28 per cent. This includes a number of institutions in the south. There were 263 cases (.37 per cent) in 70,987 first admissions to forty-eight hospitals in sixteen different states. The admissions reported from the southern institutions indicate that pellagrous psychoses are comparatively infrequent as a rule. During the year 1918 pellagra constituted 10.7 per cent of the admissions to the Columbia State Hospital. During the biennial period of 1917 and 1918 the admission rate at the Arkansas State Hospital for Nervous Diseases was 8.31 per cent. None were admitted to the Spring Grove State Hospital at Catonsville, Maryland. In 1919 the admission rate at the Western State Hospital at Staunton, Virginia, was 1.14 per cent, at the Central State Hospital, Petersburg, Virginia, 1.39 per cent, and at the Georgia State Sanitarium at Milledge-

ville, 2.49 per cent. One and sixty-one hundredths per cent of the admissions to the Louisiana State Hospital during 1920 were diagnosed as psychoses due to pellagra. Very few cases are reported in the northern institutions.

CHAPTER X

THE PSYCHOSES WITH OTHER SOMATIC DISEASES

Mental disturbances of various types associated with somatic conditions and not sufficiently characteristic or circumscribed in their symptomatology to constitute definite and separate psychoses have long been recognized. That delirium is a complicating factor in certain acute febrile diseases has been known for centuries. Aristotle called attention to the occurrence of hallucinations and illusions during the course of fevers. Hippocrates referred frequently, not only to excitements, but to delirium and phrenitis. The word "delirus" appears in several places in the works of Horace and many of the early authors apparently used this term as synonymous with both mania and melancholia. That was probably true of Sennert. Flemming in 1844 mentioned fever delirium, hallucinatory and delusional clouded states and an encephalitic form in addition to the various alcoholic types. Sydenham referred to the mental symptoms associated with malaria and Bright in his original "Reports" described other delirious conditions at some length. Sir Thomas Watson showed that the brain was uninvolved at autopsy in the acute rheumatic affections with apparent cerebral complications. Mental symptoms have, of course, been associated for hundreds of years with meningitic processes. Diabetic coma was also recognized long since. Griesinger is said by some to have been the first to call attention to the psychoses caused by the acute infections. Post febrile mental disturbances were, however, referred to by Sydenham, Bail-

larger, Westphal, Greenfield, Gubler and many others. Delasiauve very elaborately described the psychoses associated with typhoid fever in 1849. The mental disorders accompanying gout were discussed at considerable length by Sydenham and were referred to as early as 1699 by Philander Misaurus.

According to Bucknill and Tuke,[1] Misaurus made the following very interesting suggestions in an article entitled "The Honour of the Gout": "It would be worth inquiry, whether the gout is not as effectual against madness; and we may reasonably believe that it is so, if upon examination, it should be found that there are no gouty people in Bedlam; and then for the recovery of these poor creatures to their wits again, it will not need much consideration, whether they ought not to be excused the hard blows which their barbarous keepers deal them, and the Therapeutic method of Purging, Bleeding, Cupping, Fluxing, Vomiting, Clystering, Juleps, Apozemes, Powders, Confections, Epithemes, Cataplasms, with which the more barbarous Doctors torment them, and instead of their learned Torture, indulged for a time only, a little intemperance as to wine, or women, or so; or the scholar's delight of feeding worthily, and sleeping heartily, whereby they might get the Gout, and then their madness were cured." Clouston described a very definite form of phthisical insanity. Van der Kolk made the surprising statement that phthisis and mania often alternated in regular cycles. Nasse classified the mental conditions associated with fevers as either resulting directly from the febrile disturbance, constituting a prolongation of the delirium after the temperature subsided, or developing during convalescence.

The German psychiatrists during the first part of the nineteenth century were divided into two quite separate

1. Bucknill, J. C., and Tuke, D. Hack: A Manual of Psychological Medicine. 1879.

groups. One of these insisted that all mental diseases were purely psychic in origin, and the other, that they were in all instances directly attributable to somatic disease processes. The former school was ably represented by Heinroth and Ideler and the latter by Jacobi, Nasse and Friedreich. This led to a controversy which lasted for many years. Heinroth's views were illustrated by his statement[2] that "Insanity is the loss of moral liberty. It never depends upon a physical cause; it is not a disease of the body but of the mind—a sin. . . . The man who has during his whole life before his eyes and in his heart the image of God, has no reason to fear that he will ever lose his reason. . . . Man possesses a certain moral power which cannot be conquered by any physical power, and which only falls under the weight of his own faults. . . . From wrong doing springs all misfortune, including the disorders of the mind." His principal work was a "Lehrbuch der Seelenkunde," published in Leipsic in 1818. The teachings of the psychic school were summarized by von Feuchtersleben[3] as follows:—"The mind is the immediate seat of the disease, the bodily suffering is secondary. Mental disorders may be clearly traced to their origin, Sin, Error, Passion. Diseases of the brain, on the contrary, and of all the organs, occur, even in their greatest intensity, without mental disturbance, as also the latter without the former. The psychical mode of cure is that which is properly efficient; the somatic remedies in reality act psychically; for instance through pain, diversion of the thoughts, stupefaction, terror. Pathological anatomy has not discovered any decided relation between disorganization of the brain and mental disorders." In 1836 Friedreich[4]

2. Bucknill, J. C., and Tuke, D. Hack: A Manual of Psychological Medicine. 1879.
3. Feuchtersleben, E. von: Lehrbuch der Aerzlichen Seelenkunde. 1845. Translated by H. E. Lloyd. 1847.
4. Friedreich, J. B.: Historisch-kritische Darstellung der Theorieen über den Wahnsinn. 1839. Quoted by von Feuchtersleben.

in opposing Heinroth's views outlined thirteen reasons for believing that all psychic disorders were somatic in origin:—"1. Because the mind cannot become diseased; 2. because the greater part of the causes producing those conditions is somatic; 3. because in all mental disorders there are somatic symptoms in addition; 4. because they are too permanent for pure conditions of the mind; 5. because they are subject to cosmical and telluric states; 6. because their crises always take place in a material way; 7. because they are not infrequently removed by strong material influences; 8. because the somatic mode of cure alone has a direct sanatory effect, the psychical at most an indirect effect on the body; 9. because the occurrence of psychical indisposition on one side only, must arise from the duality of the brain; 10. because the return of reason before death occurs in cases not only of psychical, but likewise of somatic diseases, and may be physically accounted for; 11. because mental disorders correspond with the temperaments; 12. because it may be proved that there are psychical conditions which depend on organic causes, and are therefore very analogous to psychical disorders; 13. because chronic delirium (mania) can be no other than febrile." Absurd as such discussions may seem at this time, they are no worse than the theological debates of that day. As a matter of fact, they were no more futile than the efforts still being made to classify the various psychoses on some one common ground, for any other than purely statistical purposes.

Kraepelin[5] divides the psychoses due to infection into febrile delirium, infection delirium, acute confusional states (amentia) and exhaustions. The result of the infectious process, as he says, may be merely to precipitate a manic-depressive psychosis, or an attack of dementia praecox, general paresis or delirium tremens.

5. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

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It may also be manifested in the form of a neuritis, myelitis, encephalitis, or a meningitis. Bonhöffer in 1910 described several forms of "symptomatic psychoses" due to infections and divided them into three main groups: deliria, confusions and mental enfeeblements. He also referred to epileptiform excitements, dream states, hallucinoses, manic types and amentias either hallucinatory, catatonic or incoherent in character.

Kraepelin speaks of several definite stages or forms of febrile delirium. In the mildest of these there is a feeling of discomfort with a sensation of fulness in the head and a marked sensitiveness to external impressions. In the second stage a suggestion of clouding becomes apparent and perception is distorted by hallucinations and illusions. There is an increased activity of the mental processes and consciousness soon assumes a dreamlike form. Hallucinations and illusions are mixed with realities. The restlessness increases and excitements or depressive moods may precede the appearance of the third stage. In this there is a more pronounced disturbance of consciousness with disorientation, confusion, flight of ideas, and variable emotional reactions, sometimes with actual manic manifestations. Evidences of stuporous tendencies may appear at times. In the fourth stage a state of weakness develops, with picking at the bed clothes, tremulous movements and a senseless muttering of words and syllables. This terminates in complete coma. In smallpox, scarlet fever, erysipelas, articular rheumatism and pneumonia there are often sudden confused excited states, while in typhoid fever stuporous delirium is the rule. Hendriks found the mental symptoms in typhoid greater during convalescence and not closely related to the febrile reaction. He describes a marked disturbance of attention with little involvement of apprehension or comprehension, but marked loss of mental capacity and sometimes a tendency to confabula-

tion. Visual hallucinations and loss of sleep are common symptoms. Often there is restlessness, talkativeness, indifference, carelessness and disturbances of volition. In articular rheumatism and scarlet fever, according to Kraepelin, delirium sometimes develops with sudden rise of temperature. Restlessness, talking in the sleep, volubility or dulness precede an unusually violent delirium, sometimes terminating in stupor and death. The basis of these conditions in all cases is the toxic infection causing the fever, changes in metabolism, circulatory disturbances and an involvement of various organs, particularly the brain. A rapid and considerable rise of temperature usually causes delirium in typhoid, smallpox and erysipelas while it has no such effect usually in tuberculosis. This disturbance is a direct result of the influence of the toxins on the cortex. Alcoholism constitutes another well-known and common cause. In seventy per cent of the cases the duration was less than one week and the delirium disappeared with the fall in temperature. Some cases terminate in infection delirium or they may precipitate genuine attacks of manic-depressive insanity, dementia praecox or general paresis.

The so-called acute alteration of Nissl was a very common change found in the cortical cells at autopsy. This very generally involved the entire cortex. Kraepelin describes another characteristic alteration observed in cases of typhoid delirium. The Nissl bodies are clumped together in the periphery, and are deeply stained, the processes also being unusually dark. Some cells show a shrunken nucleus with swollen, lightly stained bodies. Around these neurones there are usually large accumulations of elongated glia cells.

In the infection delirium, so called, the mental disturbance develops in a case where there is no hyperpyrexia or where at least there is no relation between the psychosis and the temperature. A restless excitement

ushers in the attack. Pressure in the head, mental dulness, depressed or sometimes cheerful moods, uneasiness, disturbed sleep and anxious dreams are common symptoms. Later a disturbance of consciousness appears and a special type known as "initial delirium" may develop. This is a common occurrence in typhoid fever.

Aschaffenburg described two forms of initial delirium. The first is a restless condition of clouding with hallucinations and delusions. The second form, which may develop from the first, shows active mental excitement. Mild in its onset, a confusional delirious state soon develops with flight of ideas, hallucinations, delusions, and marked anxiety. An initial delirium of this type often occurs in smallpox. This assumes a particularly severe form with a tendency to suicide and violence, strongly resembling epileptic dream states. Seizures and epileptiform convulsions may occur. The delirium usually develops from the third to the fifth day of the disease and mental enfeeblement sometimes follows. The attack usually lasts from several days to a week. It may continue as a fever delirium. About forty or fifty per cent die. Nissl in one case found a marked congestion of the vessels of the cortex, with an increase in the number of leucocytes, and a widespread destruction of the neurones. The cell bodies were swollen and the chromatin lumps destroyed. Karyokinetic changes were noted in the glia cells.

More or less similar delirious states occur in the course of intermittent malarial fevers. These usually take the form of a marked anxious excitement, often with stupor or a tendency to violence. The attacks begin suddenly, last only a few hours and end in sleep. Convulsions are frequently observed. These conditions occur in the quotidian or tertian types but rarely in the quartan. The delirium precedes a febrile disturbance or may take its place. It is apparently due to an accumulation

of plasmodia in the cerebral vessels. In influenza, restlessness, confusion, anxious excitement or hallucinatory deliria may be associated with a low temperature. Polyneuritic manifestations have also been observed. The disturbance is undoubtedly caused by the influenza bacillus or the action of its toxins on the cortex. Abscesses are found in some instances. Deliria with phthisis are rare unless there is a tubercular meningitis. In the septic infections, conditions with marked clouding are often observed, and are to be attributed to embolism, metastases, etc. Muscular weakness, aphasia, perseveration and convulsions may be present in these cases. Infection delirium also occurs in chorea. This takes the form of a clouded dreamlike state with confusion of thought at times, hallucinations, delusions, and emotional excitement accompanied by characteristic choreiform movements. Apprehension, as a rule, is unimpaired, but attention is disturbed and the patients are forgetful and distractible. They do not have a clear grasp on their surroundings. Occasional hallucinations appear. The mood is anxious, excited, fearful or irritable, sometimes with outbursts of anger or threats of suicide. The choreiform attacks are aggravated and speech is affected. The reflexes are decreased and muscular weakness develops. The pupils are dilated and sleep is interfered with to a marked degree. This excitement lasts for a short time only, but often recurs. In nine per cent of the cases (Kleist) death results from heart failure, septic infection or other intercurrent diseases. Wassermann and Westphal demonstrated streptococci in the brain in several cases of chorea. Others have reported staphylococci in the blood. Choreic delirium is usually associated with endocarditis or rheumatic infections, and occurs in the acute type but not in the Huntington variety of the disease.

Delirious excitements, according to Kraepelin, also

occur in acute cerebrospinal inflammatory processes and may be due to furunculosis or caused by infections from the mouth or the intestinal tract. There is nothing particularly characteristic in such conditions aside from their severity. They have been collectively described under the designation of "acute delirium." Their differentiation depends entirely on the demonstration of the source of infection. The anatomical basis for these disturbances is always found in the cerebral cortex. The pia is infiltrated with lymphocytes and plasma cells and leucocytes are found in the perivascular spaces. There is also a proliferation of the glia. The "grave" alteration of Nissl is often demonstrable. After the infectious process passes its maximum intensity and the delirium disappears, "residual" delusions may remain with a clear sensorium. These may last for several days or even weeks. They frequently follow typhoid fever. Occasionally hallucinations of sight and hearing persist in the same way.

"Collapse delirium" was first described by Hermann Weber in 1866. It takes the form of a stuporous state with confusion of thought, dreamy hallucinations, flight of ideas, an unstable emotional condition and an active motor excitement. The onset is usually sudden, following a period of sleeplessness and restlessness. Disorientation occurs early and consciousness is markedly clouded. Phantastic hallucinations and illusions are frequent. Excitement and confusion are also prominent symptoms. Flight of ideas is common and the patient often sings or expresses himself exclusively in verse or rhymes. Senseless and rapidly changing delusions are noted. The mood is elated, erotic, anxious or irritable, with outbursts of anger. Motor excitement is conspicuous and there is no sleep. Usually food is refused and nutrition disturbed with a great reduction of bodily weight. This condition is of short duration, usually not

more than a few days, often terminating in sleep in favorable cases. Only a confused recollection of events remains on recovery. Collapse delirium, according to Kraepelin, is purely an infectious process and often occurs in pneumonia, erysipelas and influenza, following the subsidence of the active symptoms of the disease. It occasionally complicates articular rheumatism and scarlet fever. The characteristic features in erysipelas are hallucinations and delusions of a delirious type, while clouded states, confusional excitements and flight of ideas are more common after pneumonia. The symptoms usually develop after the temperature falls and other evidences of weakness are present. Kraepelin, however, recognizes infection as the only cause at this time, although he previously described these as exhaustive conditions.

Acute confusional states or amentia were described by Meynert in 1881. These are characterized by a clouding of consciousness with multiform manifestations of excitement both sensory and motor. Amentia is one of the sequelae of infectious diseases. It takes the form of a subacute development of a dreamlike confusion with hallucinations, illusions and motor excitement lasting usually for several months. It is very closely related to collapse delirium and the hallucinatory insanity of Hoche, Fürstner and others. The early symptoms are sleeplessness and unrest. The patients become anxious, forgetful, develop a fear of death, and cannot control their thoughts, complaining of dulness and confusion of mind. A difficult comprehension of external impressions develops. They may be attentive and seriously troubled at not being able properly to grasp their surroundings. A decided uncertainty and restlessness results. Everything seems changed or false. There is at first a feeling of inadequacy and a profound disturbance of thought which develops into a well defined confusional condition.

A dreamlike state follows, sometimes with a tendency to fabrications. Rhymes, phrases and words may be repeated frequently. There is a tendency towards distractibility and flight of ideas with vague thoughts of persecution. Hallucinations sometimes become apparent, and illusions appear. The mood is usually one of irritable anxiety, suspicion and mistrust, seldom with complete dulness. Occasional outbursts of anger take place. A restless behavior is noted as a rule. Sometimes suicidal tendencies occur and mild stuporous states follow.

In another group of cases depression is an especially prominent feature as occasionally happens after typhoid fever; or states of excitement may exist with a flight of ideas and delusions of grandeur. Before the febrile disturbance has disappeared signs of restlessness are noted. Orientation is soon lost, apprehension is disturbed, the patient becomes distractible and begins to show hallucinations. Ideas of grandeur develop and fabrications are conspicuous and extravagant. The mood is angry and irritable, sometimes cheerful or elated, but very changeable. Restlessness, volubility, flight of ideas, senseless rhyming, confused writing and tendencies to sing, etc., soon appear. The sleep is very much disturbed. Very little nourishment is taken or it is refused entirely. Bodily weight is greatly reduced. The reflexes are usually increased, the pulse slow and the temperature subnormal. The duration of the disease is usually not more than from two to six months. Amentia usually follows typhoid, articular rheumatism, smallpox and cholera, and occasionally occurs after pneumonia. Symptoms invariably develop after the fever has subsided. After typhoid the characteristic features are excitement with hallucinations, delusions and variable moods; after articular rheumatism, disturbance of apprehension, rest-

lessness, depression or even stupor; and after phthisis, hallucinations with preservation of consciousness and slight confusion.

Light forms of the infectious exhaustions, according to Kraepelin, may appear after convalescence from the more severe illnesses. The patient does not make a good recovery, is exhausted, cannot think clearly, tires easily and is not able to read or write letters. Mental activity is weakened and the patient remains in bed, apathetic and indifferent. Consciousness, orientation and perception are undisturbed, although hallucinations may appear when the eyes are closed or noises in the ears may be noticed. The mood is gloomy, hopeless, and sometimes irritable, with sudden attacks of anxiety at night. The patient becomes suspicious and has fears of death or poisoning. Hypochondriacal feelings with self-accusation may develop. Food may be refused and suicidal attempts occur. Some cases are reserved and quiet, even stuporous, expressing only a few delusional ideas at times. Sleep and appetite are affected and weight lost as a consequence. These lighter forms usually follow influenza, articular rheumatism, whooping cough, tuberculosis or chorea. The duration is ordinarily brief—a few weeks or months, followed by recovery. In some instances the disease may progress to a complete enfeeblement of the mental processes.

The exhaustive conditions in a large group of more severe cases are ushered in by a delirium or confusional state with a depressed mood. There is first a slight anxiety. Self-accusation and persecutory ideas appear early. Hallucinations of hearing and vision develop. The patients soon become clouded, inattentive, show difficulty of thought and loss of memory, with mental dulness. All grasp upon their surroundings is lost, they fail to recognize members of the family, and answer questions

unintelligently. They have no appreciation of their condition and no memory for events. The mood is indifferent, apathetic or whining. It may be irritable, quarrelsome or violent. Usually they lie in bed and are entirely apathetic. Sometimes they show automatic movements and have to be fed. The conversation is often incoherent and meaningless. They are inclined to be emotional. Sleep is usually interfered with and they are restless at night. The appetite is lost. Occasionally evidences of brain lesions appear with paralyses, speech disturbance or epileptiform seizures. The duration is usually a matter of a number of months. At autopsy grave cell alterations and glia reactions are common. Rod cells are also found. Endothelial proliferation is frequently observed in the vessel walls. Some cases terminate in a chronic condition which may improve somewhat in time. There may be a persistent emotional and mental enfeeblement with indifference, loss of memory, lack of judgment and impairment of will. These "acute dementias" represent the terminal stages of cortical infectious processes. They have been observed after typhoid, rheumatism, erysipelas, cholera, smallpox and malaria. Usually after tubercular peritonitis or articular rheumatism there is a simple mental enfeeblement, while erysipelas is usually accompanied by mild excitements and an elated mood. The typhoid cases usually showed irritability, with outbursts of anger and confusional states with hallucinations and delusions. They occasionally terminate in more chronic conditions with permanent deterioration.

After typhoid, influenza and septic infections, Korsakow's "cerebropathica psychica toxaemica" sometimes occurs. This is the polyneuritic psychosis similar to that caused by alcohol. There is, however, a delirium or stupor at the same time.

The post-rheumatic psychoses have been studied

exhaustively by Knauer.[6] Stuporous attacks were found in ninety-three per cent of his cases, following acute infections. He describes four groups showing psychotic manifestations:—

1. Anxious delirious excitements followed by stupor.
2. Excitements alternating with stupor.
3. Stuporous depression throughout.
4. Amentia-like excitements throughout.

The essential feature of Knauer's study was an analysis of post-rheumatic stupors. He describes these as clouded or dream states "not different from physiological sleep and the ordinary artificial narcoses." In them he sees a disturbance of apprehension, an interference with intellectual processes, a retention defect, and a loss of the power of attention. Catalepsy was found to be present in the majority of his cases. The loss of affect was described as being more complete than in manic-depressive psychoses. He speaks of the mood as sad, depressed, anxious, but above all, changeable.

Generally speaking this group of psychoses due to somatic disease is one which requires further study. We have comparatively little statistical information on the subject as yet. The differentiation of these conditions as outlined in the Association's statistical manual is as follows:—

"Under this heading are brought together those mental disorders which appear to depend directly upon some physical disturbance or somatic disease not already provided for in the foregoing groups.

"In the types designated below under (a) to (e) inclusive, we have essentially deliria or states of confusion arising during the course of an infectious disease or in

6. Knauer, A.: The Psychoses Occurring as a Result of Acute Articular Rheumatism. Zeitschrift f. d. ges. Neurol. u. Psychiatrie. Vol. 21, 1916.

association with a condition of exhaustion or a toxaemia. The mental disturbance is apparently the result of interference with brain nutrition or the unfavorable action of certain deleterious substances, poisons or toxins, on the central nervous system. The clinical pictures met with are extremely varied. The delirium may be marked by severe motor excitement and incoherence of utterance, or by multiform hallucinations with deep confusion or a dazed, bewildered condition; epileptiform attacks, catatonic-like symptoms, stupor, etc., may occur. In classifying these psychoses a difficult problem arises in many cases if attempts are made to distinguish between infection and exhaustion as etiological factors. For statistical reports the following differentiations should be made:

"Under (a) 'Delirium with infectious diseases' place the *initial deliria* which develop during the prodromal or incubation period or before the febrile stage as in some cases of typhoid, small-pox, malaria, etc.; the *febrile deliria* which seem to bear a definite relation to the rise in temperature; the *post-febrile deliria* of the period of defervescence including the so-called 'collapse delirium.'

"Under (b) 'Post-infectious psychoses' are to be grouped deliria, the mild forms of mental confusion, or the depressive, irritable, suspicious reactions which occur during the period of convalescence from infectious diseases. Physical asthenia and prostration are undoubtedly important factors in these conditions and differentiation from 'exhaustion deliria' must depend chiefly on the history and obvious close relationship to the preceding infectious disease. (Some cases which fail to recover show a peculiar mental enfeeblement.) In this group should be classed the 'cerebropathica psychica toxaemica' or the non-alcoholic polyneuritic psychoses

following an infectious disease as typhoid, influenza, septicaemia, etc.

"Under (c) 'Exhaustion deliria' are to be classed psychoses in which physical exhaustion, not associated with or the result of an infectious disease, is the chief precipitating cause of the mental disorder, *e.g.*, hemorrhage, severe physical over-exertion, deprivation of food, prolonged insomnia, debility from wasting disease, etc.

"Of the psychoses which occur with diseases of the ductless glands, the best known are the thyroigenous mental disorders. Disturbance of the pituitary or of the adrenal function is often associated with mental symptoms.

"According to the etiology and symptoms the following types should therefore be specified under 'Psychoses with Other Somatic Diseases':

"(a) Delirium with infectious disease (specify)
"(b) Post-infectious psychosis (specify)
"(c) Exhaustion delirium
"(d) Delirium of unknown origin
"(e) Cardio-renal disease
"(f) Diseases of the ductless glands (specify)
"(g) Other diseases or conditions (to be specified)."

A study of 480 cases of psychoses with other somatic diseases reported from the New York state hospitals during 1918 and 1919 shows the following types represented:—

	Number	*Percentage*
Delirium with infectious diseases	68	14.16
Post-infectious psychoses	102	21.25
Exhaustion delirium	94	19.58
Delirium of unknown origin	36	7.50
Cardio-renal diseases	69	14.37
Diseases of the ductless glands	20	4.16
Other conditions	91	18.90

An analysis of 140 cases from the Massachusetts state hospitals in 1919 shows the following:—

	Number	*Percentage*
Delirium with infectious diseases	48	34.28
Post-infectious psychoses	25	17.85
Exhaustion delirium	26	18.57
Delirium of unknown origin	6	4.28
Cardio-renal diseases	16	11.42
Diseases of the ductless glands	1	.71
Other conditions	18	12.85

Three hundred and sixteen cases from hospitals in nineteen other states were reported as follows:—

	Number	*Percentage*
Delirium with infectious diseases	69	21.83
Post-infectious psychoses	30	9.49
Exhaustion delirium	75	23.73
Delirium of unknown origin	33	10.44
Cardio-renal diseases	45	14.24
Diseases of the ductless glands	15	4.74
Other conditions	49	15.50

We have, thus, a total of 936 cases distributed as follows:—Delirium with infectious diseases, 19.76 per cent; post-infectious psychoses, 16.77; exhaustion delirium, 20.83; delirium of unknown origin, 8.01; cardio-renal diseases, 13.88; diseases of the ductless glands, 3.84; and other conditions, 16.88 per cent. Four and one hundredth per cent of the first admissions in Massachusetts, 3.45 per cent of the New York admissions, and 2.07 per cent of admissions to twenty-one other institutions during the same period of time were cases of psychoses due to other somatic diseases. They constituted 2.81 per cent of 34,935 admissions to all of the institutions above noted.

CHAPTER XI

THE MANIC-DEPRESSIVE PSYCHOSES

The manic-depressive psychoses as first described by Kraepelin are of comparatively recent origin. The history of the clinical entities included in this new grouping, however, may be easily traced back to the earliest days of psychiatry. Although these terms were not used perhaps as they came to be later, mania and melancholia were, as has already been shown, known in the Hippocratic era, over four hundred years before the time of Christ. They were referred to again in the works of Aretaeus in the first century A.D. and were recognized by Celsus, Caelius Aurelianus and Galen. Daniel Sennert[1] of Wittenberg (1572-1637) defined melancholia as a "delirium or deprival of imagination and reason, without fever, with fear and sadness, arising from dark and melancholy animal spirits, and occasioning corresponding phantoms." Mania he described as a "delirium or deprival of imagination and reason without fear, but, on the contrary, with audacity, temerity, anger, and ferocity, without fever, arising from a fervent and fiery disposition."

Sydenham[2] recommended bleeding, followed by purgation, as the treatment indicated for mania:—"Thus the humours, which in mania would invade the citadel of the brain, are gradually drawn off towards the lower parts, a fresh bias being given to them."

Thomas Willis[3] made some very significant ref-

1. Tuke, D. Hack: A Dictionary of Psychological Medicine. 1892.
2. Ibid.
3. Ibid.

erences to the relation existing between mania and melancholia, in the seventeenth century:—"After melancholia we have to treat of mania, which has so many relations to the former, that the two disorders often follow each other, the former changing into the latter, and inversely. The melancholic diathesis, indeed, carried to its highest degree, causes frenzy, and frenzy subsiding changes frequently into melancholia (atrabiliar diathesis). These two disorders, like fire and smoke, often mask and replace each other, and if we may say that in melancholia the brain and the animal spirit are obscured by smoke and black darkness, mania may be compared to a great fire destined to disperse and to illuminate it." Morgagni,[4] "the father of pathology," also saw a close relation between these two conditions as is shown by the following quotation from his "De Sedibus et Causis Morborum;" etc., in 1761. "Melancholia," he says, "is so nearly allied to mania, that the diseases frequently alternate, and pass into one another; so that you frequently see physicians in doubt whether they should call a patient a melancholiac or a maniac, taciturnity and fear alternating with audacity in the same patient; on which account, when I have asked under what kind of delirium the insane persons have laboured whose heads I was about to dissect, I have had the more patience in receiving answers which were frequently ambiguous and sometimes antagonistic to each other, yet, which were, perhaps, true in the long course of the insanity." Flemming[5] in 1844 described a "dysthymia atra" (melancholia), a "dysthymia candida" (cheerful dysthymia) or "melancholia hilaris" characterized by elation with playfulness and a "tendency to see everything in the most pleasant and cheerful light" as well as a "dysthymia mutabilis,"

4. Pritchard, James C.: A Treatise on Insanity and Other Disorders Affecting the Mind. 1835.
5. Flemming, C. F.: Ueber Classification der Seelenstörungen. Allgemeine Zeitschrift für Psychiatrie. 1844.

an alternating variety involving both of the above forms. He also spoke of a "dysthymia sparsa" (apathica) or "melancholia attonita," and a "vesania maniaca" or mania which he divided into the acute, delirious, alcoholic, affective, and puerperal types, together with an "occult amentia" embracing all of these forms. Griesinger[6] in 1845 called attention to the fact that "the transition of melancholia into mania, and the alternation of these two forms, are very common." In 1851 Falret, senior, first described circular insanity in his lectures at the Salpêtrière, quoted by Tuke[7] as follows:—"We have also to mention another case of intermittence observed between the periods of remission and excitement in the forme circulaire des maladies mentales." "It is a special form which we call 'circular' and which consists, not as has been frequently said, in a change of mania into melancholia separated by a more or less prolonged lucid interval, but in the change from maniacal excitement—simple overactivity of all the faculties—into mental torpor."

In 1854 at the Academy of Medicine in Paris Falret presented his "Mémoire sur la folie circulaire, forme de maladie mentale caractérisée par la reproduction successive et régulière de l'état maniaque, de l'état mélancolique, et d'un intervalle lucide plus ou moins prolongé." In the same year Baillarger described his "Folie à double forme," summarized by him in a Bulletin of the Academy of Medicine as follows:—

"(1) Besides monomania, melancholia, and mania, there exists a special form of insanity characterized by two regular periods, one of depression, the other of excitement.

6. Griesinger, Wilhelm: Die Pathologie und Therapie der psychischen Krankheiten. 1845.
7. Tuke, D. Hack: A Dictionary of Psychological Medicine. 1892.

(2) This form of insanity: (1) presents itself in isolated attacks; (2) reproduces itself in intermissions; (3) the attacks may follow each other without interruption.
(3) The duration of the attacks varies from two days to one year.
(4) When the attacks are short, the transition from the first to the second period takes place suddenly, and generally during sleep. It takes place slowly and gradually when the attacks are prolonged.
(5) In the latter case, the patients seem to enter into a state of convalescence at the end of the first period, but this return to health is incomplete; after a fortnight, a month, six weeks or more, the second period breaks out."

This was described as "Folie à double phase" by Bellod, "Folie à formes alternés" by Delaye, "Délire à formes alternés" by Legrand du Saulle, "Die cyclische Psychose" by Ludwig Kirn and "Das circuläre Irresein" by Krafft-Ebing.

At a meeting of the American Association in 1886 the classification of the British Medico-Psychological Association was adopted with the omission of moral insanity and the addition of toxic insanity. This included the following types of mania:—Recent, chronic, recurrent, à potu, puerperal and senile, and classified melancholia as recent, chronic, recurrent, puerperal and senile. In his "Clinical Lectures on Mental Disease" Clouston in 1898 described eight varieties of melancholia and six of mania, not including alternating forms. Kahlbaum in 1882, reverting apparently to the phraseology of Flemming, spoke of dysthymia, hyperthymia and mixed or circular forms—cyclothymia. Many of the conditions afterwards classified under dementia praecox he described as "vesania typica."

It will be observed that, based somewhat on the conceptions of Griesinger, states of mental excitement were generally characterized as mania and all depressions as melancholia. As has been shown, the view that there was some definite relation between these two conditions had been gaining ground for many years and culminated in the "circular insanity" concept. In the meanwhile over fifty varieties of mania and thirty forms of melancholia were described by various authors. Aside from an emotional exaltation and increased psychomotor activity, few definite characteristics were insisted upon in a consideration of mania. There was almost invariably a disturbance of sleep but always with a sense of well-being and no feeling of exhaustion. The milder type of the disease was often referred to as "hypomania." In the more severe forms varying grades of violence developed. There was at times a clouding of the sensorium, a temporary appearance of hallucinations of sight and hearing, delusions of a persecutory or grandiose nature and incoherence of speech. Impulsive acts occasionally were noted during the height of the excitement. These attacks were frequently preceded by brief periods of depression. Many cases made rather early recoveries—others, however, were spoken of as having reached a chronic stage. Many terminated in dementia. These very often showed stereotypies, verbigeration, impulsive excitements, mannerisms and other symptoms now held to be characteristic of dementia praecox. Melancholia was looked upon as including all emotional depressions with hallucinations and delusions as the prominent symptoms. The mental state was essentially one of sadness but with fear, agitation and anxiety appearing at times. There was, however, no attempt at any differentiation between psychomotor retardation with genuine depression and apathetic states or actual mental dulness. Mutism and resistiveness were common. A refusal of food

was rather to be expected. Stuporous states with muscular rigidity frequently occurred. Various physical changes were described. Cyanosis of the extremities was emphasized, with loss of weight and a lowered temperature. Many of the cases were untidy in their habits. Brief initial attacks of excitement were mentioned as usually ushering in the disease. These depressions recovered, became chronic, lasting for years, or terminated in a partial or complete dementia. These were in substance the views of practically all of the earlier writers on insanity.

Sankey[8] in 1884 included in his idiopathic psychoses due to pathological conditions, general paresis and "ordinary insanity." "This is the disease which in its course presents such varying phenomena, and has thus given occasion for multiplying the names." Prominent in this group were the various forms of mania and melancholia and it undoubtedly included dementia praecox. "Like other diseases it may be artificially divided into separate stages, and this is useful for facilitating description, but such artificial divisions must not be looked upon as different species of disease." . . . "Thus, a case in the primary attack commences by symptoms of melancholy; these may, when successfully treated, pass off, and the patient recover, or the melancholic stage may be aggravated, and the patient die in this stage;—the disease may exhibit symptoms of violence and become acutely maniacal. There is no ground on this account to say, that the patient has a new disease, any more than the appearance of an eruption in an eruptive disease would be the inauguration of a different kind of malady." Although obviously he had no idea as to the fundamental differences between manic-depressive insanity and dementia praecox, he unquestionably was one of the first to emphasize the fact that mania and

8. Sankey, W. H. O.: Lectures on Mental Disease. 1884.

melancholia were often definite stages of one disease process.

In 1896 Kraepelin described melancholia as essentially an involutional condition. Under the heading of periodic constitutional disorders he included mania, circular and depressive forms, the mania, melancholia, and circular insanity of other writers. Schüle [9] in 1886 described circular, periodical and alternating psychoses. In 1894 Ziehen [10] included in his classification under the heading of combined psychoses a "melancholisch-maniakalisches" form in addition to mania and melancholia, which he spoke of as affective psychoses.

It was not until 1899 that these conditions were clearly differentiated by Kraepelin [11] and the purely emotional and recoverable forms separated clinically from the deteriorative processes which he has associated with dementia praecox. The former he described as manic-depressive psychoses, which included mania, melancholia and a majority of the circular and alternating types previously described. This delimitation had a prognostic as well as an important symptomatic significance. The emotional excitements were characterized by an increased psychomotor activity, with a flight of ideas and distractibility, usually associated with a clear sensorium. Graver forms were, however, recognized, with a clouding of consciousness, and disorientation, occasionally terminating in stupor. Hallucinations and delusions when present were not prominent symptoms. The depressions were characterized by an emotional disturbance in the form of sadness with difficulty in thinking, associated with marked retardation in speech and a motor inhibition. More advanced stages showed clouding, disorientation, stuporous phases and hallucinations. He also recognized alternating or circular as well as mixed types. The prognostic

9. Schüle, Heinrich: Klinische Psychiatrie. Third edition. 1886.
10. Ziehen, Th.: Psychiatrie. 1894.
11. Kraepelin, E.: Psychiatrie. Sixth edition. 1899.

importance of this clinical grouping was the tendency towards a complete recovery from the individual attack, with, however, an extreme probability later of a recurrence, the subsequent attacks assuming either form of the disease. As a rule Kraepelin found that the unfavorable types formerly included in the manias and melancholias, together with the hebephrenia and katatonia of his fifth edition, presented the definite characteristics of the disease which he described as dementia praecox. His views have been modified from time to time. For instance, he at one time excluded the involutional and anxiety psychoses from his manic-depressive group. Later these were included. In his last edition he has described depressed and agitated forms of dementia praecox, which would strongly suggest that his lines of demarcation were not so clear as he believed them to be in 1899. Of the manic-depressive psychoses he says, "Manic depressive insanity as described in this chapter includes on the one hand the entire domain of the socalled periodic and circular insanities, on the other, simple mania, the larger part of the disease process described as melancholia and also a not inconsiderable number of cases of Amentia. Finally we include certain mild morbid emotional states, some periodical, some continuous, which heretofore have been looked upon either as introductory to more severe disturbances or as belonging, without being sharply circumscribed, to the domain of individual makeup. As years go by I have become more and more convinced that these all represent manifestations of one disease process." The following classification of manic-depressive psychoses was shown in Kraepelin's last edition (1913):—

Manic types:

Hypomania, Acute mania, Delusional and Delirious forms.

Depressive types:

Melancholia simplex, Melancholia gravis, Stupor, Paranoid, Phantastic and Delirious forms.

Mixed types:

Depressive mania.
Excited depressions.
Mania with poverty of thought.
Manic stupor.
Depression with flight of ideas.
Retarded mania.

The mixed and atypical forms are of special importance, as they occupy the middle ground between the classical types of manic-depressive insanity and dementia praecox. It is here that difficulties arise and errors in diagnosis are made. They have never received sufficient attention until recently. In practice many of these have undoubtedly been classed with the dementia praecox group. The first of these as described by Kraepelin is depressive or anxious mania—characterized by a depressive mood with anxiety and excitement and, at the same time, a flight of ideas. The patients are distractible, observant of everything in their surroundings, and complain that thoughts obtrude themselves upon them. Some have a mania for scribbling. Often there are delusions of persecution, sin, and hypochondriacal ideas. The mood is one of anxiety or despair. Impulsive acts are occasionally observed. They are inclined to weep, wring their hands, pull out their hair and throw themselves on the ground.

Instead of a flight of ideas there may be poverty of thought and retardation with excitement—an "excited depression." The patients may be very wordy and monotonous in expression but are entirely clear as to their surroundings. The mood is anxious and tearful, often with delusions. There is a considerable excitement, but

not of such a stormy character as in the depressive or anxious mania.

Mania with poverty of thought, an "unproductive" form, shows a more cheerful mood but without a flight of ideas. This form Kraepelin speaks of as a common one. Speech is monotonous and expressionless. The patients present almost an appearance of feeblemindedness, although exceedingly variable and changeable. The mood is cheerful and sometimes irritable. The excitement is shown by jumping around, making faces, etc., but without any occupational activity. This alternates with periods of quiet when but little is said. They show no desire to occupy themselves in anything useful. Sudden outbursts of violence often occur.

Stuporous, almost cataleptic forms with occasional delusions of a hypochondriacal type, fairly well oriented and with a clear sensorium, are spoken of as "manic stupor." This is interrupted by excitement and violence, with laughter, witty remarks and even eroticism. They often have a clear memory of all occurrences. This stuporous type may appear suddenly in an ordinary manic attack, or take place between excitements and depressions.

In the course of an ordinary depression a flight of ideas may also replace the usual retardation—"depression with flight of ideas." The delusions are interspersed with cheerful thoughts and the patients show certain activities and an interest in their surroundings, although still depressed and hopeless. When they begin to talk they complain of an inability to control their thoughts. There is an inhibition of speech but not of thought. They may be quite prolific in writing, and may show a characteristic flight of ideas. This condition often merges into genuine excitement.

Kraepelin also speaks of an inhibited or "retarded mania," showing a cheerful mood with flight of ideas

and psychomotor retardation. These cases are excited, distractible, inclined to witticisms with "klang associations," but lie quietly in bed. He believes that there is an inner tension manifesting itself at times in acts of violence. Kraepelin also speaks of various other mixtures of depression, anxiety and excitement. Specht has described an "irascible mania" (Zorntobsucht) and Stransky a bashful mania (verschämte Manie). Dreyfus has described a partial inhibition or retardation (partiellen Hemmung). Hecker is responsible for a "grumbling" or faultfinding variety of mania (nörgelnden Formen der Manie). In any event, Kraepelin's conceptions constitute a distinct advance and have materially clarified a much involved confusion of entities which seem to warrant complete differentiation. His views have, of course, not been universally accepted. The English school of psychiatrists has been slow in expressing its approval of his theories. No textbook of late years has appeared, however, in this country that has failed to recognize the manic-depressive psychoses practically as Kraepelin originally described them.

The psychological mechanisms of manic-depressive insanity have been studied exhaustively by Karl Abraham and other psychoanalysts. He looks upon retardation as a symbol of death and interprets it as a defensive reaction, the patient taking refuge in a retarded state to avoid contact with the outer world. The ideas of poverty associated with depressions he considered as symbolic of an inability to love and occurring in individuals who have not obtained sexual gratification in a normal way. When repression is no longer possible mania ensues and the patient enters upon a new existence, all instinctive inhibition being lost. The flight of ideas he looks upon as a reestablishment of infantilism. He suggests these views, however, as tentative. The delusions of the manic-depressive psychoses have been interpreted

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as an expression of repressed complexes. White[12] would explain these mechanisms as follows:—"Manic-depressive psychosis is the type of extroversion reaction. That is, the patients instead of turning within themselves (introversion) try to escape their difficulties (conflict) by a 'flight into reality.' This flight into reality is the manic phase of the psychosis with its flight of ideas, distractibility and increased psychomotor activity during which the patient seems to be at the mercy almost of his environment having his attention diverted by every passing stimulus. The great activity can be understood as a defense mechanism. The patient appears, by his constant activity to be covering every possible avenue of approach which might by any possibility touch his sore point (complex) and so he rushes wildly from this possible source of danger to that meanwhile keeping up a stream of diverting activities. He is at once running away from his conflict—into reality—and trying to adequately defend every possible approach. . . . This method I have described as a 'flight into reality' which is the characteristic of the manic phase, while the failure to deal adequately with the difficulty is manifested by the depression of the depressive phase. In the depression the defenses have broken down and the patient is overwhelmed by a sense of his moral turpitude (self-accusatory delusions). This sense of being sinful is the conscious appreciation of tendencies which should have been left behind to become a part of the historical past (the unconscious) in the course of the development of the psyche but which still demand expression. . . . The benign character of the manic-depressive group of psychoses is explained because of their extroverted mechanism. Reality is the normal direction for the libido and because the direction is normal they more readily result in recovery."

12. White, William A.: Outlines of Psychiatry. 1919.

The American Psychiatric Association, in its manual designed for the assistance of hospitals for mental diseases in the compilation of statistical data, makes the following suggestions as to the delimitation of the manic-depressive psychoses:—

"This group comprises the essentially benign affective psychoses, mental disorders which fundamentally are marked by emotional oscillations and a tendency to recurrence. Various psychotic trends, delusions, illusions and hallucinations, clouded states, stupor, etc., may be added. To be distinguished are:

"The *manic* reaction with its feeling of well-being (or irascibility), flight of ideas and over-activity.

"The *depressive* reaction with its feeling of mental and physical insufficiency, a despondent, sad or hopeless mood and in severe depressions, retardation and inhibition; in some cases the mood is one of uneasiness and anxiety, accompanied by restlessness.

"The *mixed* reaction, a combination of manic and depressive symptoms.

"The *stupor* reaction with its marked reduction in activity, depression, ideas of death, and often dream-like hallucinations; sometimes mutism, drooling and muscular symptoms suggestive of the catatonic manifestations of dementia praecox, from which, however, these manic-depressive stupors are to be differentiated.

"An attack is called *circular* when, as is often the case, one phase is followed immediately by another phase, e.g., a manic reaction passes over into a depressive reaction or vice versa.

"Cases formerly classed as allied to manic-depressive should be placed here rather than in the undiagnosed group.

"In the statistical reports the following should be specified:—(a) Manic type; (b) Depressive type; (c)

Stuporous type; (d) Mixed type; (e) Circular type; (f) Other types."

Diefendorf[13] states that manic-depressive insanity comprises from twelve to twenty per cent of the admissions to hospitals for mental diseases. He reports defective heredity as being shown in from seventy to eighty per cent of the cases. He also found about seventy-five per cent of the patients suffering from this disease to be of the female sex. Buckley[14] states that sixty per cent of the cases give positive histories of "familial neuropathy and psychopathy." Paton[15] is of the opinion that heredity is a factor in from eighty to ninety per cent of all cases. Hoch has called attention to the constitutional makeup of individuals subject to manic-depressive attacks and suggests that they are usually of a moody, morose type, unduly optimistic or temperamentally unstable. Kraepelin[16] found suicidal tendencies in 14.7 per cent of the female patients, and in 20.4 per cent of the men. Nine per cent of his cases showed a manic makeup; 12.1 per cent, a depressive temperament; 12.4 per cent were irascible or nervous; and from three to four per cent exhibited cyclothymic tendencies. Of the cases admitted to his clinic 48.9 per cent were depressive forms; 16.6 per cent, manic; and 34.5 per cent represented both types in various combinations. Melancholia simplex and gravis constituted 23.5 per cent of the simple forms, 13.5 per cent showed phantastic delusions and 6.1 per cent anxieties. Hypomanias made up four per cent, and acute mania, 9.8 per cent of the cases. Confused and stuporous states constituted 8.2 per cent and compulsions, one per cent. Lighter forms constituted ten per cent, and more severe types, nine per cent of the admissions. Stupors and clouding were found in 4.9

13. Diefendorf, A. Ross: Clinical Psychiatry. 1918.
14. Buckley, Albert C.: The Basis of Psychiatry. 1920.
15. Paton, Stewart: Psychiatry. 1905.
16. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 3, 1913.

per cent and delusional states in 4.9 per cent of the total. He quotes Walker as reporting, in a study of 674 cases, that excitements contributed eleven per cent; depressions, 55.7 per cent; and circular forms 33.3 per cent of the male cases; and excitements, 6.2 per cent; depressions, 70.2 per cent; and circular types, 23.6 per cent of the female admissions. In from sixty to seventy per cent of Kraepelin's cases the first attack was a depression. In two-thirds of them, after the first mild attack there was a remission. In one-third of the cases, the depression terminated in an excitement followed by recovery. When the disease begins with a manic attack, two-thirds of the cases are followed by a remission. He reports excitements with a duration of ten years and depressions of fourteen years standing. In a study of 703 remissions he found ninety-six lasting from ten to nineteen years; thirty-four, from twenty to twenty-nine years; eight, from thirty to thirty-nine years; and one of forty-four years. He is of the opinion that the length of remission bears no relation to the duration of the attack. Of the depressions, 167 had a remission of six years; forty-six of 2.8 years; and twenty-seven of two years or more. Of the manic forms, fifty-three had remissions of 3.3 years; twenty-four of 4.5 years; and twenty of two years or more. Manic-depressive psychoses constitute from ten to fifteen per cent of the admissions at Kraepelin's clinic. He found hereditary taint in eighty per cent of his Heidelberg cases and quotes Walker as reporting 73.4 per cent; Saiz, 84.7 per cent; Weygandt, ninety per cent; and Albrecht, 80.6 per cent. A history of alcoholism was found in twenty-five per cent and syphilis in eight per cent of the male patients.

Rehm made an interesting study of the offspring of manic-depressives. Of forty-four children in nineteen families, fifty-two per cent showed evidences of psychic degenerations, twenty-nine per cent of which consisted

in an abnormal emotional makeup usually of the depressive types. In 157 cases from fifty-nine families, Bergamasco found that 109 showed manic-depressive psychoses. Kraepelin noted that the highest percentage of the first attacks occurred between the ages of fifteen and twenty. Reiss made a very significant analysis of the various forms of the disease manifested by individuals possessing definite predisposition. Thus, of the cases with a depressive makeup 64.2 per cent had depressive attacks, 8.3 per cent, manic, and 27.5 per cent, combined forms. Of those with manic temperaments, 35.6 per cent had depressive attacks, 23.3 per cent, manic, and 41.1 per cent, combined forms. Of the irritable individuals, 45.5 per cent had depressive attacks, 24.4 per cent, manic, and 30.1 per cent, combined forms. Of the cyclothymic persons, 35.3 per cent had depressions, 11.7 per cent, excitements, and fifty-three per cent, combined forms.

An analysis of the number of cases of manic-depressive insanity admitted to American institutions is exceedingly interesting in view of the opinions expressed by Kraepelin. From 1912 to 1919 there were 49,640 first admissions to the thirteen New York state hospitals. Of these, 7,499, or 15.1 per cent, were diagnosed as having manic-depressive psychoses or allied conditions. During the years 1918 and 1919, when the Association's classification was officially used throughout, the percentage of manic-depressive psychoses was 14.57. In the fourteen state hospitals of Massachusetts in 1919 there were 3,011 first admissions. Two hundred and eighty-three, or 9.39 per cent, of these were manic-depressive psychoses. In twenty-one state hospitals in fourteen other states, practically all in 1917, 1918 and 1919, there were 18,336 first admissions. Of these 3,409, or 18.59 per cent, were cases of manic-depressive insanity. Thus, of the 70,987 first admissions reported from forty-eight hospitals in sixteen different states there were 11,191 cases

of manic-depressive insanity, a percentage of 15.76. This may probably be looked upon as fairly representative of the incidence of manic-depressive psychoses in American institutions.

When it comes to an analysis of the various forms of manic-depressive psychoses reported, the indications are not so clear. In New York during 1918 and 1919 there were 1,980 cases distributed as follows:—

Type	*Number*	*Percentage*
Manic	905	45.71
Depressive	729	36.82
Stuporous	53	2.68
Mixed	245	12.37
Circular	48	2.42

During the eight-year period referred to above in the New York hospitals there were 6,091 cases of manic-depressive and allied conditions, classified as follows:—

Type	*Number*	*Percentage*
Manic	2952	48.46
Depressive	2014	33.06
Stuporous	76	1.24
Mixed	773	12.69
Circular	199	3.26

The fourteen Massachusetts hospitals reported 672 cases in 1917 and 1918, classified as follows:—

Type	*Number*	*Percentage*
Manic	222	33.03
Depressive	373	55.50
Stuporous	4	.59
Mixed	66	9.82
Circular	7	1.04

In the twenty-one hospitals in fourteen other states there were 3,409 cases of manic-depressive psychoses as follows:—

Type	*Number*	*Percentage*
Manic	1401	41.09
Depressive	1365	46.04
Stuporous	62	1.82
Mixed	228	6.69
Circular	94	2.76

The total from all of these institutions, of 12,152 cases, was classified as follows:—

Type	*Number*	*Percentage*
Manic	5480	45.09
Depressive	4481	36.87
Stuporous	195	1.60
Mixed	1312	10.79
Circular	348	2.87

It will be noted that manic cases are more common than the depressive in New York, the number of the former being fifteen per cent greater than the latter. In Massachusetts the number of depressive forms is twenty-two per cent higher than the manic. In the other states the depressive types are less than five per cent higher than the manic. In all institutions the mixed forms are more common than the circular or stuporous. The stuporous forms constitute the smallest percentage reported in all hospitals, except in 1918 and 1919 in New York. We would be warranted, apparently, in the conclusion that in this country manic forms are the more common, the depressive being second in frequency, followed by the circular and stuporous types in the order mentioned.

The statement is, I think, also warranted that there is a considerable difference of opinion as to the classification of the different forms of manic-depressive insanity and that diagnostic procedure is far from being standardized. Many of these discrepancies are doubtless due to difficulties in differentiating between certain cases of manic-depressive psychoses and dementia praecox. The hospitals reporting lower percentages of the former usually show a much higher rate of the latter. Certainly there is room for an honest difference of opinion in many instances. It must be admitted, moreover, that our fundamental conceptions of these two great groups do not permit of a hard and fast line of demarcation between them in all cases.

CHAPTER XII

INVOLUTION MELANCHOLIA

In 1896 Kraepelin first definitely outlined his views on dementia praecox, to which he assigned hebephrenia, although he did not at the time include katatonia in his delimitation of that disease. He also described melancholia in his fifth edition, classifying it as an involutional or retrograde presenile process (Das Irresein des Rückbildungsalters). He had not as yet formulated his theory of the manic-depressive psychoses although he described manic and depressive forms of periodical constitutional disorders. In 1899 he discarded the mania and melancholia of other writers altogether or rather included them in his new manic-depressive group, but still retained melancholia as a distinct entity occurring in the involutional period of life only. As has already been shown, melancholia is a term which had been used for centuries and in a general way applied to depressions of any and all types. Kraepelin's manic-depressive psychoses and dementia praecox very largely destroyed the integrity of this old-time conception. It has been shown, furthermore, that depressive states often constitute an integral part of the picture of general paresis. Symptomatic depressions more or less distinct in character have been associated with a number of somatic diseases. Senile psychoses, epilepsy, various organic conditions, the psychoneuroses and the psychopathic personalities have depressive manifestations well recognized and readily classifiable.

Kraepelin, however, pointed out the fact that there

was another group still unaccounted for—the anxious depressions of later life, which he included under the designation of involution melancholia and which did not belong to the manic-depressive group. This he described as being preeminently a depression associated almost always with anxiety and fear as prominent symptoms. Accompanying this condition there are usually ideas of poverty, sin, or impending danger of some kind. Delusions of self-accusation are quite common. Anxious restlessness or agitated excitement is to be expected in a majority of the cases. There is usually no clouding of the consciousness, although, as Hoch expresses it, "the mental horizon may be more or less narrowed to the depressive ideas." The memory as a rule is not impaired. Hallucinations of sight and hearing are often present. Somatic delusions of a hypochondriacal nature occur. Insomnia is usually marked. The tendency of the disease is towards deterioration. Retardation and psychomotor inactivity are not to be expected. Melancholia is to be differentiated from manic-depressive insanity by the prominence of anxiety and apprehension, the absence of any retardation or psychomotor inhibition, the unusual frequency of self-accusation with ideas of sinfulness, the clearness of the sensorium, the comparatively unfavorable prognosis and the great frequency of suicidal impulses. The age, and the absence of previous attacks, is, of course, exceedingly important in arriving at a diagnosis. The onset of the disease is usually between the ages of forty and sixty, but not infrequently it begins with the menopause in women, and Kraepelin states that sixty per cent of the cases occur in the female sex. He found a history of defective heredity very common. The precipitating factor is often some mental shock, the illness or death of friends, or disasters of various kinds. No distinctive pathology of the disease has been described by Kraepelin. He was uncertain as to the rôle played

by arteriosclerosis in its etiology. Diefendorf[1] reported that about one-third of the cases made complete recoveries; twenty-three per cent were able to return to their previous surroundings; twenty-six per cent terminated in an advanced state of deterioration and nineteen per cent died within a period of two or three years.

In 1907 Dreyfus,[2] at that time an assistant of Kraepelin's, made an elaborate study of the cases previously diagnosed as involution melancholia in the Heidelberg clinic. During a period of fourteen years, a total of seventy-nine were reported. A thorough investigation by Dreyfus showed that two-thirds of these had made complete recoveries or improved to such an extent as to be able to go home. Only eight per cent showed a marked mental deterioration. He also found that over half of the series had more than one attack, usually depressions. One-third of the patients died and were thus eliminated from further consideration. The duration of the attack was over three years in one-third of the cases reviewed. Fifteen per cent recovered in from three to five years, nine per cent in from six to eight years, and eight per cent in from ten to fourteen years. He was of the opinion that after a careful study of the hospital records the symptoms found could all be explained on the basis of manic-depressive insanity, usually of a mixed form. Kraepelin had reported that forty-nine per cent of his cases deteriorated mentally. Dreyfus reduced this on further observation to only eight per cent. On analysis he found, in many instances, brief periods of manic elation, sometimes only a matter of hours or a few days, evidences of excitability, manic suggestion in the eagerness of the patient to communicate his troubles to others, and inhibitory processes indicated by a lack of interest,

1. Diefendorf, A. Ross: Cilnical Psychiatry. 1918.
2. Dreyfus, G. L.: Die Melancholia ein Zustanbild des Manisch-Depressiven Irreseins. 1907. Reviewed by Dr. George H. Kirby. The State Hospitals Bulletin, December 1, 1908.

loss of affection or even difficulty of thinking. Dreyfus concluded that the depressions of late years were not so common as had been supposed and that a sufficient knowledge of their history showed that they had usually exhibited previous attacks. He thought that the long duration of the disease probably led to erroneous ideas as to its termination in deterioration.

Kirby [2] is of the opinion that Dreyfus based some of his findings on insufficient evidence, as shown by his published case records:—"In a considerable number of other cases the author's conclusion that manic-depressive symptoms were present is based on extremely meagre data. As an illustration one case may be referred to briefly. A man fifty-three years old had an agitated depression lasting over two and one-half years and terminating in recovery. The case record contains no statement of any objective inhibition or feeling of subjective insufficiency, neither are there any statements regarding flight of ideas, or unusual loquacity. The diagnosis, however, is made of manic-depressive insanity, with partial psychomotor inhibition and flight of ideas. The assumption that these symptoms existed is based entirely on the retrospective account from the patient, obtained three years after recovery from the psychosis. He then declared that during the attack he could not think calmly; it seemed that one thought "knocked the other down," one thought "hunted after the other." He also described a feeling as if there were a cap on his head, as if he were nailed down. These retrospective statements are interpreted to mean that there was partial psychomotor inhibition and flight of ideas. In many other cases the reasoning is just as forced and the deductions based on equally insufficient grounds. . . . The author's aim was

3. Dreyfus, G. L.: Die Melancholia ein Zustandbild des Manisch-Depressiven Irreseins. 1907. Review by Dr. George H. Kirby. The State Hospitals Bulletin, December 1, 1908.

to see if the symptoms present fitted into certain schematic formula and thus the analysis became rather a search for diagnostic signs supposed to characterize a definite form of disease. Such a method leads away from consideration of the mental disorder as a whole; a few minor features are emphasized in the picture and because the patient recovers these are raised to diagnostic importance—a little feeling of insufficiency or a slight change of mood in a disorder which ends in recovery are seized upon as evidence that a special kind of disease exists; as a matter of fact, we would hardly miss just such symptoms in many other psychoses. There is no attempt to get below the surface, to understand the evolution of the disorder, or to use the facts in the development in formulating the prognosis."

In the introduction to the book written by Dreyfus in 1907, Kraepelin nevertheless expressed the opinion that "These results show that for the most of these disorders which have been designated as melancholia there now exists no sufficient reason to separate them from manic-depressive insanity." This at the time was looked upon as definitely settling the fate of the melancholia concept and it was abandoned by some. As a general rule, however, the psychiatrists of this country seem to have accepted Kraepelin's original description of the disease as being thoroughly justified. To use White's words, "Many psychiatrists still believe, although Kraepelin himself accepts Dreyfus' conclusions, that there is still a place for involution melancholia distinct from the manic-depressive group."

In his eighth edition Kraepelin[4] discusses melancholia as a presenile condition and reviews the whole situation in considerable detail. He shows that symptomatic considerations alone did not guide him in his original conception of the disease. A great deal of weight

4. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

was attached to prognosis and certain forms were separated out and differentiated from manic-depressive because they tended towards mental enfeeblement. He calls attention to the fact that Thalbitzer disputed the integrity of melancholia in 1905, classifying it as a manic-depressive reaction. After reviewing the findings of Dreyfus he admits that the conclusions of the latter are in the main correct and that involution melancholia as originally described cannot be retained as a definite entity. "The significant fact still remains," he says, "that single attacks of depression are disproportionately common in the involution period." Hübner, for instance, found twenty-one single attacks of melancholia after the fiftieth year of age to only two single attacks of mania. "The appearance of depressions, therefore, through the revolutions of this period of life seems to be favored to a special degree." He again states that he is unable to determine what rôle is played in the involutional depressions by beginning arteriosclerosis or the onset of senile conditions. He concludes, however, that a form of depression, earlier described as melancholia, is still to be separated from the manic-depressive psychoses although not entirely clear as to its significance or exact delimitation.[5]

These are the most severe and rapidly fatal forms of anxious excitements, as a rule developing suddenly and included now in his presenile group. "These cases are anxious, restless, sleepless, self-accusatory and show delusions of persecution." The delusional ideas are depressive, extravagant and hypochondriacal. "They have offended everybody; are eternally damned; Satan is coming and will take them; he is out there. Nature has changed, everything is different, no mercy can come from heaven; there are ghosts in the house; the patients find themselves in the infernal regions, are surrounded by

5. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 2, 1910.

hostile powers, are in a bewitched castle. They will be carried away, thrown into a fiery furnace, their arms and legs cut off, have their throats cut in the presence of a thousand students, and be buried alive. They have a cancer in the stomach, the husband is insane or has had a stroke." Suicidal attempts are frequent. Sometimes grandiose ideas are expressed, accompanied by hallucinations. Apprehension and orientation are usually not disturbed. This is ordinarily followed by a period of violent excitement with agitated wringing of the hands, striking the breast, tearing the hair, etc. Confusional conditions with clouding may appear, often terminating shortly in a pneumonia, erysipelas or heart failure. According to Nissl, widespread and well marked changes are to be found in the brain at autopsy. There is an extensive destruction of ganglion cells, although that cannot be definitely associated with the symptoms of the disease. Kraepelin leaves the question open as to whether this should be looked upon as some form of "acute delirium" such as manifests itself in the course of various psychoses. The disease is usually one of the sixth decade of life, much more common in the female sex, and cannot without further information be definitely excluded from the involutional processes. He concludes his discussion by saying that these conditions probably "have some relation to the similar delirious senile forms to be discussed later." This is, of course, a decided modification of his original views, although it is quite clear that he still feels that there is an involutional depression, now included, however, in the presenile group.

In his chapter on manic-depressive insanity three years later Kraepelin[6] referred to this question again as follows:—"Under these circumstances I thought at first that the involutional depressions described as special clinical forms, melancholia in the narrower sense,

6. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 3, 1913.

which seemed to show essential differences in its general characteristics, course, and to a certain extent in the history of its development, should be separated from manic-depressive insanity. At the same time I was aware of the fact that in a considerable number of the involutional depressions, both on account of their clinical form and their association sooner or later with manic states, their connection with manic-depressive insanity could not be questioned. I therefore made an effort to establish a practical differentiation, entirely without satisfactory results. Further experience has demonstrated, as was shown in the discussion of the presenile psychoses, that they do not constitute grounds for the separation of melancholia. Deterioration is explained by the development of senile or arteriosclerotic changes. Some cases were of long duration, showing manic symptoms before recovery. The frequency of depressions in advanced years we have learned to be a legitimate development of the involutional period of life. The substitution of anxious excitement for volitional inhibition has proved to be an occurrence which is found in advancing years in those cases which had an attack of the ordinary form in the decade before (as shown in our cases 1 and 2). Hübner has, moreover, made the observation that melancholia may show retardation in one attack and not in the next. There remains, therefore, no adequate reason for differentiating the involutional depressions heretofore described as melancholia from manic-depressive insanity."

Kehrer[7] has made a careful analysis of the facts brought out by Kraepelin's statistical diagram showing the various age groups represented by his manic-depressive cases. "From the fifteenth year of life, at which age manic and melancholic attacks are most frequent (about twenty-five per cent), the curve of the manic

7. Kehrer, F.: Die Psychosen des Um- und Rückbildungsalters. Zentralblatt für die gesamte Neurologie und Psychiatrie, April 1, 1921.

attacks falls steadily (with only two important rises at the thirty-fifth and the forty-fifth years) until it becomes less than five per cent at the seventieth year, while the curve of the melancholic conditions with equal constancy increases (with the exception of the fifty-fifth year only), especially between the forty-fifth and fiftieth years, from fifty-two to seventy-four per cent and finally to eighty per cent. On the other hand, the curve of the manic first attacks falls steadily from 28.5 per cent at the twentieth year to 3.5 per cent at the sixtieth, with a slight increase at fifty from 12.7 per cent to 13.4 per cent, while in the male sex the same curve shows no further increase after the thirtieth year, when it reaches its maximum (33.8 per cent) and even shows a particularly sharp fall, from 22.2 per cent to 5.9 per cent, between the fiftieth and sixtieth year. . . . Based on this diagram Kraepelin concluded that the depressions of the involutional period, which did not show special symptoms of some other disease entity, could not be differentiated from those of the earlier periods of life."

Specht,[8] Hübner and Stransky have subscribed to these views. Stransky expressed the opinion that "there is nothing in the form of these depressions, either with or without anxiety, by which they can be distinguished from those recognized as manic-depressive insanity and that neither the course nor the age of onset offer any convincing argument for their clinical independence." Rehm, on the other hand, held that there were depressions of the involutional period of life corresponding to Kraepelin's melancholia and not belonging to manic-depressive insanity. He described these as lacking the constitutional taint and characterized by a slow onset, without previous attacks, fatigability, outspoken egocentric conduct, hypochondriacal delusions of the deteriorative type and the

8. Kehrer, F.: Die Psychosen des Um- und Rückbildungsalters. Zentralblatt für die gesamte Neurologie und Psychiatrie, April 1, 1921.

appearance of hallucinations. Bleuler,[9] Bumke, Seelert, Albrecht and others still hold to the integrity of involution melancholia as a distinct entity. "These forms," as Bleuler expresses it, "have as a rule a much more protracted course. They progress slowly for one or two years, continue to be mild, reaching their height in several years, and decline slowly to their final conclusion. The inhibition is obscured by great restlessness, genuine agitated forms are common, they tend to recidivism much less than the others and show also much less heredity." Albrecht, in 138 cases of functional psychoses of the involutional period, only thirty-two of which were in men, diagnosed eighty-two as genuine involution melancholia. In none of his cases did he find an isolated attack of mania in that period of life. He differentiates this condition from agitated melancholia, leaving the question open as to whether this constitutes a pernicious form or is a presenile disease. According to Bumke, psychic causes are more prominent in involution melancholia than in the manic-depressive psychoses, the duration is longer and they do not make such complete recoveries, the most common termination being a depressive mental enfeeblement, with despondency and an anxious hypochondriacal mood. For the genetic interpretation of climacteric melancholia as well as the other involutional forms the intimate association, according to Bumke, of endogenous with exogenous factors is the point of greatest importance. "Involution only brings the barrel to an overflow; it only adds exogenous to the individual endogenous momentum so that the sum total leads to the outbreak of a manifest psychosis." Seelert goes still further with the endogenous-exogenous theory of Bumke. "It depends on the type of the association whether the organic anxiety psychosis, a melancholia or the depression of a manic-

9. Kehrer, F.: Die Psychosen des Um- und Rückbildungsalters. Zentralblatt für die gesamte Neurologie und Psychiatrie, April 1, 1921.

depressive insanity develops in the later period of life. In one the endogenous factors predominate, in the other the exogenous and in melancholia (in its narrower sense) the two maintain a balance."

Although, as has been noted, no characteristic pathological changes have been associated with involutional melancholia, a condition to which attention was called by Adolf Meyer should be referred to here. In 1901, in an article in "Brain" on "The Parenchymatous Systemic Degenerations mainly in the Central Nervous System" he proposed the name "Central Neuritis" for a terminal affection previously described by Turner in 1899 and occurring more frequently perhaps in involutional melancholia than in any other psychosis:—"This alteration has been found to occur in peculiar forms of end stages of depressive disorders, near or after the climacteric period, alcoholic-senile and alcoholico-phthisical cachectic states, idiocy, and perhaps also general paralysis (Turner's case). Ordinary infectious and cachectic states do not, however, appear to form an important link in the causes."[10] The mental condition is usually anxious, agitated and apprehensive, often terminating in a delirium followed by a stupor. The disease may last for a few days ending in death or may recover after several weeks. It is accompanied by progressive weakness, loss of weight and wasting, a slight rise of temperature, and in many cases attacks of diarrhea. Characteristic are muscular tension with rigidity, twitching movements, incoordination and jactitation of the limbs. The reflexes are usually increased. The onset is often quite sudden, usually in the fourth, fifth or sixth decade of life. At autopsy a striking condition, described as axonal alteration, is found in the "Betz" and other large ganglion cells generally. The cell body is some-

10. Meyer, Adolf: Insanity: General Pathology. Reference Handbook of the Medical Sciences. 1909.

what swollen, the stainable substance is reduced to a structureless powder and the nucleus is dislocated and appears conspicuously in the periphery. There is also some "Marchi" degeneration of the fibre tracts in the motor areas. The regions involved, according to Meyer,[11] are "the cortico-thalmic connections of the motor areas, the auditory radiation, the forceps, the pyramids, the fillet, the restiform body, and to a lesser degree, the posterior column of the cord, the intersegmental elements, and the segmental efferent motor elements."

In view of the attitude of the psychiatrists of this country as shown by numerous expressions of opinion, the statistical committee of the Association felt justified in retaining involution melancholia in its classification of psychoses for the present and collecting data for further consideration. The following suggestions were offered as to its delimitation:—

"These depressions are probably related to the manic-depressive group; nevertheless the symptoms and the course of the involution cases are sufficiently characteristic to justify us in keeping them apart as special forms of emotional reaction.

"To be included here are the slowly developing depressions of *middle life and later years* which come on with worry, insomnia, uneasiness, anxiety and agitation, showing usually the unreality and sensory complex, but little or no evidence of any difficulty in thinking. The tendency is for the course to be a prolonged one. Arteriosclerotic depressions should be excluded.

"When agitated depressions of the involution period are clearly superimposed on a manic-depressive foundation with previous attacks (depression or excitement) they should for statistical purposes be classed in the manic-depressive group."

11. Meyer, Adolf: Insanity: General Pathology. Reference Handbook of the Medical Sciences. 1909.

In view of the history of the development of the conception of this psychosis an analysis of the hospital statistics on this subject is of unusual interest. We now have reports of over seventy thousand first admissions based almost entirely on the classification at present used by the Association. In 49,640 first admissions to the New York hospitals during a period of eight years there were 1,351 cases diagnosed as involution melancholia—2.72 per cent of the total. During 1918 and 1919, when the Association's classification was followed in detail, these hospitals showed 480 cases, or 3.45 per cent of 13,588 first admissions. Twenty-one public institutions in fourteen other states reported 378 cases, or 2.06 per cent of 18,336 admissions. Two and twenty-five hundredths per cent of the admissions to the Massachusetts state hospitals in 1919 were cases of involution melancholia. Reports from forty-eight different state hospitals show that involution melancholia constituted 2.53 per cent of over seventy thousand admissions. This shows a remarkable similarity in standards of diagnosis as far as this psychosis is concerned.

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CHAPTER XIII

DEMENTIA PRAECOX

The dementia praecox of today, notwithstanding the numerous theories which have been advanced as to its etiology and pathology and the various fundamental conceptions which have been evolved in the interpretation of its mental mechanisms, is essentially the disease described by Kraepelin in 1899. The designation which he applied to this psychosis or group of psychoses was not new, having been used by Morel as early as 1860 and again by Pick in 1891. His views as to the delimitation of the disease were, however, altogether different from those of earlier writers and were destined to inaugurate a new era in psychiatry. The grouping which he proposed would include certain types of mania and melancholia and the psychoses of puberty and adolescence described by Hecker and Kahlbaum together with various paranoid states previously associated with paranoia, chronic delusional insanity, etc.

Kraepelin thus at one blow destroyed the integrity of mania, melancholia, terminal dementia and paranoia, entities which had been practically unquestioned for centuries. This radical departure from established psychiatric procedure was based on his observation that various definite characteristics were common to certain cases in all of these clinical groups and that they were of vital significance from a symptomatic as well as a prognostic point of view. He called attention to the fact that excitements and depressions often recurred or alternated in the same individual without any tendency towards mental enfeeblement. An analysis of the mental mechan-

isms and symptomatology of these cases led to his well-known conception of the manic-depressive psychoses. Other clinical groups equally well-defined, although not so sharply circumscribed, showed consistent and progressive tendencies towards mental deterioration. These were brought together and described as dementia praecox. This may be looked upon as a logical development of the progress made by the German school of psychiatrists. The first step in this direction perhaps was the recognition of hebephrenia by Hecker in 1871. He particularly emphasized the occurrence of this condition at the time of puberty or during the adolescent period. This has often been referred to as "silly dementia." The preliminary stage or onset in many instances was characterized by a gradual change in personality. This was evidenced by foolish behavior, silly actions and a failure of adjustment to the patient's surroundings often resulting in an abandonment of his usual occupation, with an evident gradual intellectual deterioration. Initial attacks of depression were frequent, usually with hypochondriacal ideas and only occasional hallucinations or delusions. Transitory periods of excitement were common sequelae. The emotional reactions were characterized by their shallowness, the train of thought by incoherence, the conduct by foolish and senseless acts and the intellectual reactions by an advancing deterioration. "The weakminded silliness of the disease picture," in the words of Krafft-Ebing, "is partly to be explained by the original weakmindedness of the patient, which Hecker emphasizes in the etiology of his cases."

A more decided step in the development of the dementia praecox concept was the description by Kahlbaum of katatonia in 1874. This may be ushered in by an early stage strongly suggesting hebephrenia but terminating usually in a depression followed by states of excitement, stupor and dementia. The characteristic

features of the disease are the peculiar catatonic stupor so-called, and forms of excitement differing materially from those exhibited in the manic-depressive psychoses. Hallucinations and delusions are almost invariably present. The delusions are likely to be of a most absurd and extravagant type, accompanied by self-accusation in some instances but oftener by feelings of influence referred to others or somatic ideas. States of muscular tension appear early, with constrained attitudes and peculiar mannerisms. The stupor which is such a prominent feature in the picture is characterized by negativism shown by a resistance to all external influences, mutism and a refusal to accept food. This may be associated with rigidity due to extreme muscular tension which is often so marked as to be described as cataleptic. Automatism may manifest itself in the form of echolalia or echopraxia. The excitements are characterized by impulsive acts of violence. Verbigeration and stereotypy are frequent symptoms. Remissions are rather to be expected but the tendency of the disease is towards a marked mental deterioration in the great majority of cases.

Schüle in 1886 suggested the term dementia praecox as one applicable to the psychoses of adolescence. It remained for Kraepelin, however, to establish the entity of these disease processes by including still another type, the paranoid forms, which were left entirely unaccounted for in the conceptions of Hecker, Kahlbaum, Schüle, Morel, Pick, or any of the earlier writers. In this group he included cases with persistent hallucinations, more or less loosely systematized delusions of persecution and gradually increasing deterioration but with little or no clouding of consciousness.

In the last edition of his book Kraepelin[1] defines dementia praecox as including "a group of clinical pictures having the common symptom of a characteristic

1. Kraepelin, E.: Psychiatrie. Eighth edition, Vol. 3, 1913.

destruction of the internal associations of the psychic personality affecting particularly the emotional and volitional spheres" . . . "Although wide differences of opinion still exist on many points, the conviction seems to be gaining ground more and more that dementia praecox on the whole represents a well-defined disease entity, and that we are justified in regarding the majority at least of the apparently dissimilar clinical types here described as the manifestations of a single disease process." Many objections have been raised to the name applied to this psychosis by Kraepelin. It has been pointed out that complete deterioration is not always the termination to be expected in this group and that it is not always a disease of adolescence. All of this was conceded by Kraepelin. He employed the term as one answering the purpose "until a more thorough understanding would suggest an appropriate designation." His conception of the psychosis as described in the sixth edition of his book may, I think, be said to have received the rather general approval of the psychiatric world. While there has been no serious attack on his delimitation of the disease entity itself, there has been a decided controversy as to the psychological mechanisms involved and the fundamental principles upon which his conceptions were based. Certainly no textbook of recent years has failed to give a very serious consideration to the question of dementia praecox.

Stransky (1909) looked upon dementia praecox as the result of a lack of coordination of the intellect, the emotions and volition, which he expresses as an intrapsychic ataxia. This is illustrated by the displacement of the affect so common in dementia praecox and its association with an entirely incongruous idea. Thus, the patient laughs while expressing an exceedingly depressing delusional belief or cries while telling a joke. No emotion is displayed at the statement that he is being buried alive

or torn apart by some outside agency. This would possibly explain the unprovoked rages of the catatonic and the discrepancy between the catalepsy and mutism of a patient who is found to be perfectly oriented as to his surroundings and the curious fact that he is often thoroughly clear as to the exact day and date.

Wernicke's theories regarding the elaboration of mental mechanisms have already been referred to. He saw in dementia praecox and other deteriorative processes the possibility of a dissociation of psychical reflexes due to an interruption or disturbance located in the psychomotor projection field, preventing its proper coordination with the intrapsychic elaboration mechanisms.

The psychological processes involved in schizophrenia as outlined by Bleuler [2] (1911) have a very important bearing on the interpretation of the symptoms of dementia praecox. The group which he described under this designation is a very broad one, including "many atypical melancholias and manias of other schools (as well as hysterical melancholias and manias), the most of the hallucinatory confusions, many of the amentias described by others (our conception of amentia is much narrower), some of the forms belonging to acute delirium, Wernicke's motility psychoses, primary and secondary dementias without special designations, the most of the paranoias of other schools, especially the hysterical paranoias and almost all of the incurable hypochondrias, nervousness, compulsions and impulsions." To these he adds the various "juvenile and masturbation forms," a large part of the degenerative psychoses of Magnan, many prison psychoses and the Ganser symptom complex. In view of the fact, as Bleuler [3] expresses it, that "The name dementia praecox, which neither leads to dementia nor is precocious in its origin, necessarily, gave

2. Bleuler, E.: Lehrbuch der Psychiatrie. Second edition, 1918.
3. Ibid.

rise to many misunderstandings," he suggested the designation schizophrenia as more appropriate. "Even if we cannot make a natural grouping, it would appear that schizophrenia is not a disease in the narrower sense but a group of diseases somewhat analogous to the organic group, which includes paralysis, the senile forms, etc. Schizophrenia should therefore be spoken of really in the plural. The disease pursues a chronic course or progresses in attacks and may come to a standstill at any stage or may even regress but never to a complete restitutio ad integrum. It is characterized by a specific type of alteration in thinking, feeling and relation to the outer world encountered nowhere else. Accessory symptoms of a characteristic type are particularly common. . . . Dementia praecox in any stage may come to a stop, and many of its symptoms partially or entirely disappear but when it progresses further it leads to dementia and dementia of a definite type." A fundamental symptom, according to Bleuler, is the disturbance of association of ideas. "The normal association of ideas loses its stability; others enter at will and take their place. Thus the ideas lose their relation to each other and thought becomes incoherent." As Hoch[4] says of this disturbance, "Bleuler described it very extensively, and yet somehow it is not so very easy to grasp the nature of this disorder; it is evidently not so very different from Wernicke's sejunction, though free from all localizing anatomical bywork. It is conceived of as a more or less widespread primary interruption of the associative connection of ideas. Actual or latent associations, which, in the normal, determine the train of thought or combinations of such ideas may remain without influence upon it in an apparently aimless fashion, whereas other ideas which have no connection may intrude themselves.

4. Hoch, August: Review of Bleuler's "Schizophrenia." New York State Hospitals Bulletin, August 15, 1912.

Hence the train of thought is scattered, bizarre, illogical, abrupt. This may be so slight that it is difficult to discover, and in his description of mild conditions he says it may not be found, or only after a thorough search; it accounts for much of the scattering of ideas in chronic states, and, as we have said, it is supposed to be the explanatory principle in acute incoherence. On the other hand, similar phenomena may be due to the action of complexes, and have to be explained psychogenically. But the psychogenic explanation does not appear to him sufficient. It is somewhat difficult to see, especially when we consider the extensive symbolization and substitution, the indifference, the negativism, etc., why something beyond these psychogenically explicable disorders is required." An essential feature of Bleuler's [5] concept is "autismus." "The schizophrenics lose their contact with reality, the mild cases inconspicuously here and there, the severe cases, completely" . . . "When we allow our fancies free reign in mythology, in dreams and in many of the morbid states, thought will not or cannot concern itself with realities; it follows the dictates of instincts and emotions. This disregarding of the inconsistency with reality is characteristic of autistic thinking."

In his excellent review of Bleuler's schizophrenia already referred to, Hoch [6] makes the following comments on this subject:—"A difficult subject is autism. By autism Bleuler means that which we have called the shut in tendency, the more or less complete shutting out of the environment, or at any rate, all that which does not correspond to the wishes. It may be so marked that the patients even shut out all sensory impressions, close their eyes and ears, make their body as small as possible by

5. Bleuler, E.: Lehrbuch der Psychiatrie. Second edition, 1918.
6. Hoch, August: Review of Bleuler's "Schizophrenia." New York State Hospitals Bulletin, August 15, 1912.

crouching. Bleuler regards this autism as a secondary phenomenon, and looks upon it as one of the results of his association disorder, whereas the autistic thinking is the day-dreaming, the thinking without reference to reality. This autistic thinking flourishes in schizophrenia—Bleuler thinks that the schizophrenic defect in logic makes the exclusion of a great many external and internal facts possible, and thus gives sway to a tendency which we all have, namely, to live in fancies which suit us, something which we indulge in but do not allow to influence our conduct, but which in the schizophrenic assumes the value of reality." An outline of Bleuler's views would not be complete without his definition of blocking,[7] an important symptom. "Blocking is a sudden emotional inhibition of the psychic processes and in itself not pathological." He found it in normal individuals in nervousness and in hysteria. "Where it is not based on adequate psychological grounds, is generalized or of long duration, its presence warrants the diagnosis of schizophrenia."

A study of the psychogenic factors concerned in dementia praecox led Meyer[8] to the conclusion that the psychological processes of the disease were due to abnormal mental mechanisms developing in individuals unable to adjust themselves to their surroundings. "The general principle is that many individuals cannot afford to count on unlimited elasticity in the habitual use of certain habits of adjustment, that instincts will be undermined by persistent misapplication, and the delicate balance of mental adjustment and of its material substratum must largely depend on a maintenance of sound instinct and reaction type." This theory is supported somewhat by the "shut in personality" found by

7. Bleuler, E.: Lehrbuch der Psychiatrie. Second edition, 1918.
8. Meyer, Adolf: Fundamental Conceptions of Dementia Praecox. British Medical Journal, September, 1906.

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Hoch [9] in his studies of the history of a large number of cases developing dementia praecox.

Elaborate analyses of the psychological mechanisms involved in dementia praecox have been made by Jung and others. Freud believed hysteria to be the result of a psychic trauma. The unpleasant idea associated with this trauma is repressed into the subconscious because the individual is unable to react to it in a normal way and it is forgotten, but not until it is compensated for by a hysterical symbol or symptom which takes its place. By means of psychoanalysis, the association test and the study of dreams the nature of the psychic trauma can often be determined. Jung [10] adapted these methods of study to a consideration of dementia praecox. His investigations showed that many of the seemingly meaningless manifestations of that disease are symbols or substitutes for buried complexes. In some instances these remain in their original form without transformation. Complexes associated with a feeling of deficiency and injured pride may lead to suspicion and delusions of persecution. Unfulfilled longings may be actualized in a delirium or delusion of grandeur. Symbols and substitutes generally are said to represent complexes which are antagonistic to the ego and are therefore transformed and become unrecognizable. The peculiar symptoms of dementia praecox as a rule are a result of the individual's inability to make compensatory readjustments. In the paranoid forms the patient entirely reconstructs his psychical life. White [11] attempts to explain the meaning of some of these delusional formations in his "Outlines of Psychiatry":—"The relation of the delusion to the complex is often obvious if one is familiar with the more important of the infantile material. A man believes him-

9. Hoch, August: Constitutional Factors in the Dementia Praecox Group. Review of Neurology and Psychiatry, August, 1910.
10. Jung, C. G.: The Psychology of Dementia Praecox. 1909.
11. White, William A.: Outlines of Psychiatry. 1919.

self pregnant, that a child is in his stomach. This is obviously a regression to the period when as an infant he had not understood that gestation was a particular function of the female. Another patient enucleated his eye (castration symbol); a colored man of about forty years of age invented a perpetual motion machine (compensation for impotence); a man tries to invent the greatest cannon on earth (compensation for small penis complex); a homosexual man of the "sissy" type made wild claims of physical prowess, fighting ability, and incessantly swore and used vulgar language to demonstrate his toughness (over-compensation of homosexuality); a woman complains that her sister's husband follows her through underground passageways and shoots electricity into her genitalia and anus (anal erotism); an oral erotic woman starves herself in order to be tube fed; oral erotic patients often cut their throats while under the erotic pressure; patients frequently say that God talks with them or go to Washington to see the President (father complex); in severe grades of introversion they sit in a dark corner, head on breast, arms folded and legs and thighs flexed (intra-uterine position); a young woman says her real parents are the King and Queen of Norway (Œdipus phantasy); etc. Of course much of the delusional material is not so obviously related to infantile material and must be worked out at length with the individual to determine its meaning. It must not be forgotten that a praecox may have, however, complex reactions exactly like that of hysteria and the psychoneuroses. To that extent such a patient is hysterical or psychoneurotic."

The appearance of the last edition of his textbook showed that Kraepelin has somewhat revised his views on the subject of dementia praecox. He now speaks of a series of morbid pictures "brought together under the designation endogenous dementias for the purpose of a

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preliminary understanding." This embraces not only dementia praecox but a new entity described as "paraphrenia."[12] This includes forms "which, contrary to the usual manifestations of dementia praecox, are characterized throughout their entire course by the marked prominence of a characteristic intellectual disturbance while an independent impairment of volition and particularly an emotional alteration are lacking or only present in a mild form. For this differentiation it seems to me that no more suitable expression than "paraphrenia" could be employed for the designation of the disease processes experimentally brought together here." He speaks of the following types:—systematica, expansiva, confabulans and phantastica.

The clinical forms of dementia praecox shown in his last edition are as follows:—dementia simplex, hebephrenia, simple depressive or stuporous dementia, depressive delusional dementia, circular, agitated and periodic forms, katatonia, paranoid types (dementia paranoides gravis and mitis, hallucinatory and paranoid feeblemindedness) and confusional speech or schizophasia.

His views as to the delimitation of these different types should be expressed perhaps in his own words:[13]

"Simple progressive deterioration as described by Diem under the designation of 'Dementia Simplex,' consists in an imperceptible and complete impoverishment and breaking down of the entire mental life."

Of hebephrenia or silly dementia he says, "In this disease picture there stands out particularly with the progressive deterioration of the mental life, an incoherence of thought, feeling, and conduct."

"As the third group of dementia praecox I should like to group together, under the designation of simple de-

12. Kraepelin, E.: Psychiatrie. Eighth edition, Vol. 3, 1913.
13. Ibid.

pressive or stuporous dementia, those cases in which, after an initial depression, with or without the appearance of stupor, a terminal mental deterioration gradually develops."

"Those cases which progress to the marked development of phantastic delusions we group together in the fourth form of dementia praecox—depressive delusional dementia."

"The next large group includes those cases in which severe and protracted excitements develop."

"The first sub group which on account of its course we may designate as the circular form shows the nearest relationship to the disease picture just described in that it also begins with a depression and usually manifests active delusions."

"As a second sub group, the agitated form, we bring together those cases in which the disease begins with an excitement and then immediately or after more or less frequent remissions and relapse passes into the terminal stage."

"In close relation to the cases brought together here we have to consider a small group which either in the initial stages of the disease or throughout its entire duration follows an outspoken periodic course; these amount to less than 2 per cent of all cases."

"The excitements of dementia praecox constitute an important part of the clinical form—Katatonia—which we must now consider. Under this designation Kahlbaum described a disease picture which in turn presents the symptoms of melancholia, mania and stupor, the unfavorable cases being accompanied by confusion and deterioration and is furthermore characterized by the appearance of certain motor seizures and inhibitions—in other words, the catatonic disorders."

"In many respects a dissimilar picture is shown by those cases in which the essential symptoms are delusions

and hallucinations; these we characterize as paranoid forms. The justification for including them with dementia praecox I get from the fact that in them sooner or later the delusion formation is invariably associated with a series of disturbances which we find everywhere in the other forms of dementia praecox."

Cases "which do begin with a simple delusion formation but which in the further course exhibit still more clearly the peculiar destruction of the mental life and particularly the emotional and volitional disturbances which characterize dementia praecox may be grouped together under the name 'dementia paranoides gravis'."

"As a fourth form of paranoid dementia praecox, I believe still another group should be added, those which on the one hand show a similar development and the same delusion formation as the paranoid disorders just described but which on the other hand terminate in a characteristic mental enfeeblement." These he would call 'dementia paranoides mitis'."

"A last very characteristic group of cases the discussion of which must be included here, is formed by the patients with confusional speech." These are the Schizophasias of Bleuler.

It must be admitted that in view of Kraepelin's former contributions on this subject this classification must be looked upon as somewhat involved and confusing. It suggests an unnecessary complication of an already difficult subject to no great advantage. These varying conceptions are difficult to understand. Perhaps, as Meyer[14] expresses it, "the symptomatology in its first formulation in 1895, and later, emphasized too many things which prevail also in other conditions, so that altogether too many errors occurred. In four hundred

14. Meyer, Adolf: The Nature and Conception of Dementia Praecox. The Journal of Abnormal Psychology. Dec., 1910, Jan., 1911.

and sixty-eight of Kraepelin's Munich diagnoses even between 1904 and 1906, 28.8 per cent were cases subsequently considered to be manic-depressive (Zendig)—altogether too broad a margin of uncertainty."

In summarizing the whole situation the conclusion reached by Buckley[15] would appear to be thoroughly established:—"Most authorities agree, however, that the term dementia praecox includes the psychoses which appear prior to mental maturity (early in some and much later in others), with a tendency to permanent mental defect in the long run, but which may follow a chronic course, may be divided into attacks, or may improve or stop at any stage, but never with restoration to absolute normal health."

Notwithstanding the elaborate investigations of Alzheimer, Sioli, Klippel, Lhermitte, Moriyasu, Goldstein, Nissl and many others, no definite pathological basis for dementia praecox has ever been established.

For purposes of statistical study in the collection of data relative to this disease entity, as in all other cases, the American Psychiatric Association has endeavored to adhere to fundamental conceptions generally accepted by the profession and has avoided as far as possible adherence to the tenets of any one school. For purposes of uniformity the following suggestions were made in the "statistical manual" as to the classification of psychoses to be reported under the designation of dementia praecox.

"This group cannot be satisfactorily defined at the present time as there are still too many points at issue as to what constitute the essential clinical features of dementia praecox. A large majority of the cases which should go into this group may, however, be recognized without special difficulty, although there is an impor-

15. Buckley, Alfred C.: The Basis of Psychiatry. 1920.

tant smaller group of doubtful, atypical, allied or transitional cases which from the standpoint of symptoms or prognosis occupy an uncertain clinical position.

"Cases formerly classed as allied to dementia praecox should be placed here rather than in the undiagnosed group. The term "schizophrenia" is now used by many writers instead of dementia praecox.

"The following mentioned features are sufficiently well established to be considered most characteristic of the dementia praecox type of reaction:

"A seclusive type of personality or one showing other evidences of abnormality in the development of the instincts and feelings.

"Appearance of defects of interest and discrepancies between thought on the one hand and the behavior-emotional reactions on the other.

"A gradual blunting of the emotions, indifference or silliness with serious defects of judgment and often hypochondriacal complaints, suspicions or ideas of reference.

"Development of peculiar trends, often fantastic ideas, with odd, impulsive or negativistic conduct not accounted for by any acute emotional disturbance or impairment of the sensorium.

"Appearance of autistic thinking and dream-like ideas, peculiar feelings of being forced, of interference with the mind, of physical or mystical influences, but with retention of clearness in other fields (orientation, memory, etc.).

"According to the prominence of certain symptoms in individual cases the following four clinical forms of dementia praecox may be specified, but it should be borne in mind that these are only relative distinctions and that transitions from one clinical form to another are common:

"(a) Paranoid type: Cases characterized by a prom-

inence of delusions, particularly ideas of persecution or grandeur, often connectedly elaborated, and hallucinations in various fields.

"(b) Catatonic type: Cases in which there is a prominence of negativistic reactions or various peculiarities of conduct with phases of stupor or excitement, the latter characterized by impulsive, queer or stereotyped behavior and usually hallucinations.

"(c) Hebephrenic type: Cases showing prominently a tendency to silliness, smiling, laughter, grimacing, mannerisms in speech and action, and numerous peculiar ideas usually absurd, grotesque and changeable in form.

"(d) Simple type: Cases characterized by defects of interest, gradual development of an apathetic state, often with peculiar behavior, but without expression of delusions or hallucinations.

"(e) Other types."

A sufficient number of reports has been received from hospitals using this classification to warrant a preliminary survey of the information available at this time on the subject of dementia praecox. Perhaps it would be well to summarize first such information as is to be obtained from other sources. Diefendorf [16] states that dementia praecox constitutes from fourteen to thirty per cent of all admissions to institutions, fifty-eight per cent of the total number being of the hebephrenic, eighteen per cent, of the catatonic, and twenty-two per cent, of the paranoid variety. Kraepelin [17] (1913) found that dementia praecox constituted ten per cent of all admissions, classified as to types as follows:—Silly dementia, thirteen per cent; simple depressive dementia, ten per cent; delusional depressive dementia, thirteen per cent; circular dementia, nine per cent; agitated dementia, fourteen per cent; periodic dementia, two per cent; and kata-

16. Diefendorf, A. Ross: Clinical Psychiatry. 1918.
17. Kraepelin, E.: Psychiatrie. Eighth Edition, Vol. 3, 1913.

tonia, 19.5 per cent. He reported a history of hereditary taint in seventy per cent of his cases. Diefendorf found the onset of the disease in sixty per cent of all cases before the twenty-fifth year, Kraepelin, in fifty-seven per cent. Kraepelin[18] states that seizures occurred in twenty-one per cent of his cases of silly dementia and in the other types as follows:—simple depressive dementia, seventeen per cent; delusional depressive dementia, twenty-seven per cent; circular dementia, twenty per cent; agitated dementia, twenty per cent; katatonia, seventeen per cent; paranoid dementia gravis, three per cent and paranoid dementia mitis, five per cent. Unfortunately a survey of the other literature of the day throws little additional light on these subjects.

A study of the statistical reports made by Pollock for the State Hospital Commission shows that during the five years ending on June 30, 1919, dementia praecox constituted 14.42 per cent of the 2,024 voluntary cases admitted to the thirteen New York state hospitals. During a period of eight years ending on June 30, 1919, there were 49,640 first admissions to the New York state hospitals; 12,199, or 24.57 per cent, of these were diagnosed as dementia praecox or conditions allied thereto. The "allied" conditions have not been shown in the New York reports since 1917. In 1918 and 1919 there were 13,588 first admissions, 3,753, or 27.61 per cent, of which were cases of dementia praecox. This would indicate an increase in the incidence of that disease in New York during recent years. The Massachusetts first admissions for 1918 and 1919 show a total of 7,582 cases, 1900, or 25.05 per cent, of which were dementia praecox. It will be noted that the percentage is practically the same as that of New York for the same years. In a group of twenty-one other state hospitals, representing fourteen different states using the Association's classification,

18. Kraepelin, E.: Psychiatrie. Eighth edition, Vol. 3, 1913.

18,336 first admissions have been reported, 3,856, or 21.03 per cent, of which were cases of dementia praecox. This represents a variation from the New York and Massachusetts findings which can be explained on various grounds, largely by the fact that these institutions represent a rural population. We have thus in all 70,987 first admissions to state hospitals, with 16,920 cases of dementia praecox, representing 23.84 per cent of the total number.

A consideration of the different types of this disease as represented by the various state institutions shows somewhat different results. In New York during the years 1916-17-18-19 there were 6,135 cases of dementia praecox shown in the first admissions, classified as follows:—

Type	*Number of Cases*	*Percentage*
Paranoid	3579	58.34
Catatonic	468	7.63
Hebephrenic	1463	23.84
Simple	625	10.19

In Massachusetts in 1917-18-19 there were 2,921 cases, distributed as follows:—

Paranoid	1248	42.72
Catatonic	678	23.21
Hebephrenic	828	28.34
Simple	165	5.64

In a group of nineteen other institutions there were 3,184 cases, as follows:—

Paranoid	800	25.12
Catatonic	438	10.61
Hebephrenic	1666	52.32
Simple	230	7.22

We have thus a total of 12,240 cases, a composite group classified according to types as follows:—

Paranoid	5627	45.97
Catatonic	1584	12.12
Hebephrenic	3957	32.32
Simple	1020	8.33

Although this is probably the largest group of cases of dementia praecox recorded we are, unfortunately, not warranted as yet in attempting any final conclusions. The Massachusetts and New York statistics of late years would, I think, justify the tentative statement, at least, that dementia praecox admissions represent approximately twenty-eight per cent of all cases coming into our hospitals.

When we attempt to analyze the types of the disease as reported, it at once becomes evident that there are very divergent standards of diagnosis. There is a radical difference shown in the consideration of the so-called simple dementia praecox with a general average of 8.33 per cent. In Massachusetts there is a much higher percentage of the catatonic forms, with a predominance in New York of the paranoid variety. The proportion of hebephrenic types in the other nineteen institutions is at wide variance with the reports of Massachusetts and New York. In all probability the percentage shown in the analysis of the total number from forty-six state hospitals is not far from representing conditions existing in American institutions. A careful study of more complete reports extending over a number of years should settle this question to what may be spoken of as almost a mathematical certainty.

Pollock and Nolan[19] have made a study of 9,124 admissions of dementia praecox to the New York hospitals during a period of six and three-quarters years. Of these cases 52.2 per cent were men and 47.8 per cent, women. The distribution shown by age groups is interesting and significant, as is shown by the following table:—

19. Pollock, Horatio M., and Nolan, William J.: Sex, Age, and Nativity of Dementia Praecox First Admissions to the New York State Hospitals, 1912-1918. The State Hospital Quarterly, August, 1919.

Age Group	*Percentage*
Under 15 years	.2
15 to 19 "	7.8
20 " 24 "	20.1
25 " 29 "	22.0
30 " 34 "	16.6
35 " 39 "	13.5
40 " 44 "	8.4
45 " 49 "	5.3

This would not appear to suggest an adolescent origin for this disease to the extent advocated in our textbooks. The highest rate shown by males was in the age group from twenty-five to twenty-nine years and in the female cases, from thirty-five to thirty-nine years. Forty-nine per cent were thirty years or over at the time of admission, forty-three per cent were between twenty and thirty years of age and thirty per cent, between thirty and forty. Nineteen per cent were forty years or over at the time of admission. Pollock's [20] investigation, the most exhaustive statistical study yet made of dementia praecox, shows that fifty per cent of the cases have a family history of insanity, nervous diseases, alcoholism or neuropathic or psychopathic traits, with a full fifty per cent showing no evidence of unfavorable heredity. This again is at variance with opinions usually expressed on this subject. Forty-six per cent were of normal mental makeup and seventy-eight per cent intellectually normal before the onset of the psychosis. Alcohol was an assigned etiological factor in four per cent of these cases and there was a history of intemperance in eight per cent of the others. The incidence of dementia praecox is more than three times as great in cities as it is in the rural districts. The average length of hospital residence was sixteen years. The foreign born dementia praecox first admissions were found to be principally from Austria, Germany, Hungary, Ireland, Italy and Russia.

20. Pollock, Horatio M.: Dementia Praecox as a Social Problem. The State Hospital Quarterly, August, 1918.

Fifty-one and four-tenths per cent of the cases were natives of this country and 48.3 per cent, of foreign birth. It is interesting to note that in 1919, 39.9 per cent of the first admissions to the New York institutions for the criminal insane were cases of dementia praecox. The rate of admission was 37.1 per cent in 1918, 20.5 per cent in 1917, 30.8 per cent in 1916 and 32.8 per cent in 1915. Of the 37,607 patients in the New York state hospitals on June 30, 1919, 22,036, or 58.8 per cent, were cases of dementia praecox. One hundred and thirty-eight were discharged as recovered during a period of three years. This number represented 5.2 per cent of the cases of dementia praecox discharged during that time, 2.01 per cent of those admitted, 1.1 per cent of all discharges, and .6 per cent of all first admissions. A review of the cause of death in 2,988 cases shows that the rate for tuberculosis was thirty-three per cent during four years when there was no influenza epidemic. This constituted over fifty-nine per cent of all of the deaths due to tuberculosis during that period of time.

Dementia praecox with the highest admission rate of any of the psychoses, its exceedingly unfavorable recovery rate, its extreme susceptibility to tuberculosis, and representing as it does over one-half of the population of our hospitals, must unquestionably be looked upon as the most important form of mental disease with which we have to deal today. The number of cases of dementia praecox in the Massachusetts and New York hospitals justifies the statement that there are approximately 120,000 persons suffering from this disease in the institutions of the United States, their maintenance alone costing the country twenty-five million dollars annually. Their permanent removal would make it possible to close at least sixty institutions larger than any state hospital in Massachusetts.

CHAPTER XIV

PARANOIA AND THE PARANOID CONDITIONS

A discussion of the part played by paranoia, or the paranoid conditions however characterized, in the psychiatry of the present day, is essentially a review of the final chapter in the history of a psychiatric conception which is several centuries old. The word paranoia, like many other terms still in use, is of Greek origin and was apparently applied by Hippocrates in a very general way to "madness" of any or all forms. It almost certainly had no more definite significance than that, in the works of Plato and Aristotle, nor can it be said to have been used in its modern sense by Celsus or Aretaeus. It seems to have meant something more in the vocabulary of Vogel, an eighteenth century writer. Under the heading of paranoia, according to Jelliffe,[1] Plocquet in 1772 included Paracope or delirium with six subdivisions:—(a) pathetica, (b) phronestica, (c) entomica, (d) encephalica, (e) hyperesthetica, and (f) sympathica. It was not recognized to any great extent by the earlier writers of the French school, but occupied a very prominent place in the development of German psychiatry. Heinroth in 1818 included the paranoias in his disorders of the intellect under the name of verrücktheit, a word that was destined to become one of great importance later, and spoke of an exaltation of the feelings which he called "paranoia ecstasia."

Flemming[2] in his elaborate classification of psy-

1. Jelliffe, S. E.: A Summary of Origins, Transformation and Present-Day Trend of the Paranoia Concept. New York Medical Record, April 5, 1913.
2. Flemming, C. F.: Ueber Classification die Seelenstörungen. Allgemeine Zeitschrift für Psychiatrie. 1844.

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choses in 1844 described paranoid forms of "mania adstricta" or partial mania (monomania). Stark, a contemporary of Flemming's, made what seems to be a very direct reference to paranoia in his discussion of "Wahnsinn," as did Weiss in 1842. Von Feuchtersleben in 1845 wrote a very exhaustive description of "fixed delusions" which he classified as either involving the personality (mania metamorphosis) or as being ambitious, religious or relating to love (erotomania). He also spoke of a monomania or mania sine delirio which he attributed to Pinel. The exact significance of these conceptions cannot be determined.

In 1845 Griesinger used the word verrücktheit as applying to a secondary incurable condition, exhibiting delusions of persecution and grandeur and usually developing after an attack of mania or melancholia. He also defined Wahnsinn, which he compared to Heinroth's "paranoia ecstasia," as including "states of exaltation characterized by assertive, expansive emotions, associated with persistent excessive self-estimation and extravagant fixed delusions which arise therefrom." Magnan spoke of "folie systematisée progressive" and a "folie systematisée des dégénérés." In his "Le Délire Chronique à Évolution Systematique" he divided paranoia into a stage of subjective analysis, one of persecution and a third of transformation of the personality. Lasègue described this same condition under the name of persecution mania in 1852. Falret and Ritti divided the course of this disease into four periods, one of insane interpretations, one of visual hallucinations, one of general sensory derangement and a stereotyped state or mania of ambition. Morel was of the opinion that these psychoses were always preceded by an initial period of hypochondriasis.

Pritchard described as monomania a form of insanity "characterized by some particular illusion or erroneous

conviction impressed upon the understanding, and giving rise to a partial aberration of judgment." Esquirol devoted as many as one hundred and thirty pages to a study of monomania, which he subdivided into seven forms:—the erotic, "raisonnante" or moral insanity, the alcoholic, the incendiary, the homicidal, the suicidal and the hypochondriacal.

It was probably the work of Mendel in 1881 which was responsible for the use of the word paranoia in its modern sense. He spoke of primary and secondary paranoias.[3] The former was described as a "functional psychosis characterized by the primary appearance of delusional ideas. The delusions of primary paranoia, without being interfered with by any opposing ideas, control the entire mental life of the patient. The remaining ideas not affected by morbid processes stand in close relation, but not in conflict, with the dominating delusions. The feelings are determined by the content of the delusions and vary with them. In the same way the abnormalities of conduct are due to the content of the delusional ideas, with or without hallucinations." Régis in 1892 described his systematized progressive insanity as involving three distinct stages,—one of subjective analysis, a stage either of persecution, religious exaltation or eroticism and jealousy, and finally a megalomanic state ending occasionally in dementia. Cramer, in an elaborate review of the literature of paranoia in 1894, refers to twenty-eight different designations used by various writers in the discussion of this subject up to that time. Serieux and Copgras (1909) include deliria of interpretation and of vindication in their grouping of these conditions.

In the words of Meyer, paranoia eventually reached its high water mark in the work of Krafft-Ebing.[4] He

3. Quoted by Cramer. Abgreugung und Differenzial-Diagnose der Paranoia. Allgemeine Zeitschrift für Psychiatrie. 1894.
4. Krafft-Ebing, R. von: A Text-book of Insanity. Translated by C. G. Chaddock. 1905.

defined it as "a chronic mental disease occurring exclusively in tainted individuals, frequently developing out of the constitutional neuroses, the principal symptoms of which are delusions." These are devoid of all emotional foundation and from the beginning are systematized, methodic and "combined by the processes of judgment, constituting a formal delusional structure. Consciousness is not disturbed and judgment as a rule is not impaired but is entirely based on delusional premises." The conduct of the individual is determined by his hallucinations and delusions. The process of development is slow and the disease remains stationary for many years, but never ends in dementia. In a study of over one thousand cases Krafft-Ebing[5] never observed a definite recovery, although lucid intervals occurred, generally in the beginning of the disease. The taint of paranoia he describes as heredity, in the form of abnormal character, psychoses, constitutional neuroses and alcoholism. In a few instances he reported developmental defects in the brain. He found in all cases an anomaly of personality which determined the later form of the paranoia. Suspicious, retiring, solitary persons were usually persecuted. Rough, irritable, egotistical individuals developed the querulent forms and the over-conscientious eccentrics became the victims of religious paranoia. He attaches a considerable importance to the influence of the unconscious or subconscious mind. "Its predominance is shown in the dreamy, romantic, enthusiastic life of such individuals, and in the fact that accidental delusions occurring in sickness, dream pictures, and reminiscences from reading or plays, are elaborated in the depths of the soul, and early burst forth in the form of imperative ideas and desultory primordeal delusions, which become

5. Krafft-Ebing, R. von: A Text-book of Insanity. Translated by C. G. Chaddock. 1905.

latent, but later find their ultimate evaluation in the delusional ideas of the disease."

It is interesting to note that Krafft-Ebing speaks of precipitating factors as puberty, the climacteric, uterine disease and onanism. There is a definite period of incubation followed by one of full development in which judgment and reason are lost. Hallucinations of hearing were found to be the more common form, followed in the order of their numerical occurrence by disturbances of sensibility, vision, taste and smell. Persecutory ideas, moreover, were said to be much more frequent than delusions of grandeur. The terminal states he speaks of as mental enfeeblements with a prominence of emotional dulness, rather than intellectual defects. He divides the disease into original paranoia and the later or acquired forms. Original paranoia begins before or at latest during puberty. Hereditary taint is always to be found. Conspicuous features are sentimental tendencies inclining to hypochondria, eroticism with sensitiveness and emotional instability. Delusions as to parentage are common, suggested often by the fancied or real resemblance of the patient to pictures of distinguished personages. Transitory ideas of persecution or grandeur are nearly always present. The erotic element is more frequent in females. Intermissions sometimes last for years. The termination is often found in confusional states. The classic or acquired form of the disease develops later in life, often during the involution period. Two varieties are described,—the persecutory and the expansive. Subsidiary types of the former are sexual paranoia, often with delusions of jealousy, and querulous insanity with mania for lawsuits. The sexual complex he attributes largely to masturbation or enforced abstinence. The expansive group is divided into inventive or reformatory paranoia, the religious and the erotic varieties (erotomania). The

acquired form as described by Krafft-Ebing is quite similar to the "folie systematisée" of Magnan. It conforms, moreover, in a general way to the views expressed in the English textbooks on delusional insanity and is the paranoia of Spitzka, Chapin, Berkley, Peterson and many other American psychiatrists. This conception of the psychosis was the generally accepted one for many years.

The institutional reports of that day showed large numbers of paranoics in some of the hospitals. It was a disease that played an important part in many murder trials and has received more attention from the courts and newspapers than any other form of insanity, so-called, ever described in the textbooks. There was a time, according to Kraepelin, when from seventy to eighty per cent of the patients in the German hospitals were diagnosed as cases of genuine paranoia. Certainly that cannot be said of the institutions of this country. In the New York state hospitals, for instance, during a period of sixteen years, from October 1, 1888, to September 30, 1904, when the classical form of paranoia was officially recognized in statistics, 84,152 admissions were reported. Of this number 1,655, or 1.9 per cent, were diagnosed as cases of paranoia. At the Matteawan State Hospital for the criminal insane during this time 1,728 admissions were shown, with no cases of paranoia. At the Dannemora State Hospital for insane convicts during the same period there were 354 admissions, sixteen, or 4.51 per cent, of which were paranoiacs. This is exceedingly interesting but extremely difficult to explain. It is very hard to understand why no cases of paranoia reached Matteawan during a period of sixteen years. The percentage shown in the other institutions can be looked upon as being fairly representative of the incidence of paranoia as the disease was then understood.

The decline and fall of the paranoia concept is to be

attributed to Kraepelin. In 1893 his classification included hallucinatory and depressive forms of "Wahnsinn," both accompanied by persecutory ideas to a rather prominent degree, and paranoia proper, which he described as "Verrücktheit." This was defined as the "chronic development of a permanent delusional system with complete preservation of consciousness." In the sixth edition of his well-known textbook, which appeared in 1899, he enlarged the dementia praecox group previously described by him and added hebephrenia and katatonia to it as well as describing a new and important "paranoid" form of that disease. His own reasons for this were stated as follows[6]:—"The second clinical group" (dementia praecox, paranoid form) "which I am inclined, provisionally, to include under this head, is characterized by the fact that extravagant delusions, usually accompanied by numerous hallucinations, develop in a more coherent manner, and are maintained during a series of years, either then entirely to disappear, or to become entirely confused. Hitherto I have reckoned these forms, as 'phantastische Verrücktheit' to paranoia, as is the general practice. It has, however, gradually become clearer to me that they are at all events, more nearly allied to dementia praecox than to paranoia. Whether we really have to do in this case only with a clinical variety of the former disease or a distinct malady, the future must decide." He did, however, at that time still recognize a small but well defined group of cases as genuine paranoia. "On the other hand, there is, without doubt, a group of cases, in which it is clearly recognizable from the outset that a permanent, immovable system of delusions slowly develops, with entire preservation of mental clearness, and of the regulation of the course of thought. It is these forms for which I would

6. Kraepelin, E.: Psychiatrie. Sixth edition. 1899. Book Review, American Journal of Insanity. July, 1900.

reserve the appellation of paranoia. It is they which necessarily lead to a profound transformation of the entire view of life; to a dislocation of the point of view which the patient assumes toward the persons and events of his environment." In the eighth edition of his book (1913) he separates out a considerable number of cases and places them in an entirely new group designated as "paraphrenias."[7] This is "a comparatively small group in which, in spite of many similarities to the manifestations of dementia praecox nevertheless on account of the much less marked development of emotional and volitional disturbances the inner structure of the mental life is considerably less affected, or in which at least the loss of inner unity is essentially limited to certain intellectual functions. Common to all of these clinical forms which cannot be sharply differentiated is the marked prominence of delusion formation and the paranoid colouring of the disease process. At the same time there are also alterations in the disposition, but not until the last stages of the disease that dulness and indifference which so often are the first indications of dementia praecox." In other words, we are dealing with a group which shows the paranoid features of dementia praecox but largely lacks its deteriorative processes. This is a very decided change of views and may be looked upon either as establishing a definite status for a large number of cases not properly accounted for in the past or as an indication of a tendency to return to former conceptions of paranoia.

Of the paraphrenias as described by Kraepelin "approximately one-half show that slow but progressively developing mixture of delusions of persecution and grandeur which Magnan has described under the designation of 'délire chronique à évolution systematique.' Certainly this disease of Magnan's, as far as can be de-

7. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 3, 1913.

termined from the descriptions available, is not a clinical entity in the sense of the views expressed here; we would unhesitatingly include with the paranoid forms of dementia praecox many of the cases, with well developed mannerisms and the coinage of new words, which progress rapidly to mental enfeeblement. At the same time, however, 'délire chronique' with its slowly progressing forms lasting for decades includes a number of cases which form the nucleus of the first paraphrenic disease group to be described." Whether or not the paraphrenia of Kraepelin is accepted as having been established, it must be conceded that the question as to whether anything remains of the original paranoia group is one worthy of serious consideration. Many have discarded the term entirely.

Kraepelin's paraphrenia is divided into the following forms:—systematica, expansiva, confabulans and phantastica. The systematic type is characterized by "the extremely insidious development of continuously progressing delusions of persecution, with the later appearance of delusions of grandeur without deterioration of the personality." The expansive form shows "the prominent development of delusions of grandeur with a predominant exalted mood and mild excitement." The confabulans variety is a small group "distinguished by the prominent rôle played by falsifications of memory." The phantastic form shows "a marked development of phantastic, unsystematized, changeable delusions." This was the paranoid dementia praecox of his sixth edition. Of the cases heretofore assigned to the paranoia group Kraepelin has expressed the opinion that about forty per cent belong to dementia praecox. "A further somewhat larger part falls to the paraphrenic forms to be described here." The practically negligible remainder he apparently concedes to genuine paranoia. In his eighth edition Kraepelin states that the latter constitute less

than one per cent of all admissions. He now limits the term paranoia to cases arising from purely internal causes and showing a slowly developing permanent system of delusions without any disturbance of thought, volition or conduct. The delusional formations may be of various types,—persecution, jealousy, self-importance (great inventions, ideas of noble birth, etc.) or they may be of a religious or erotic nature. The "querulents" he now classifies with the psychogenic disorders. His present conception does not admit of the association of paranoia with hallucinations.

The most interesting and important feature, perhaps, of Kraepelin's presentation is his insistence upon internal causes only as etiological factors. He assumes a psychopathic foundation for the development of the disease. In more than one half of his cases he found well marked personal peculiarities. These were manifested in some instances in the form of irritability, excitability and abnormalities of conduct. Other individuals were suspicious, unreliable, lacking in will power and over-ambitious. Homosexual tendencies were not infrequent. External factors, such as unpleasant experiences, may influence the form of the delusional expressions but should not be looked upon as explaining their origin. They develop in an emotional soil definitely related to the hopes and fears of the healthy individual and are to be looked upon as a morbid transformation of perfectly normal mechanisms. In addition to this he speaks of an increased self-consciousness, a natural tendency to resistiveness, an undeveloped type of thinking, psychological compensations for the disappointments of life, evidences of developmental inhibitions, improper habits of thought leading to morbid conceptions, etc. He refers to exaggerated self-consciousness as the fundamental basis of paranoia. In this soil delusions develop as a result of inadequate intellectual processes due to de-

velopmental inhibitions. All of these views have been elaborated more fully in his recent discussions of the subject of "comparative psychiatry."[8] These mechanisms, he says, have not escaped the notice of the Freudian school. Kraepelin feels, however, that their arguments "are not based either on a clear conception of paranoia or on any evidence at all acceptable."

Bleuler's theory of the disease is summed up in the following quotation from his "Affectivität, Suggestibilität, Paranoia"[9]:—"The exact observation of the objective and subjective relations at the time of the origin of the disease shows us therefore nothing more than the appearance of errors, such as occur to normal persons under analogous affects and a connection of accidental occurrences to a thought complex which is kept continually awake by defects and his own trends of thought, just as it is in a corresponding normal mental process. The pathological feature is only the fixation of the error so that it becomes a delusion, and then the further extension of the delusions so that it finally becomes paranoia." In 1906 when this was written he suggested no explanation for the extension of such errors and their fixation in an actual psychosis. This might readily be interpreted as a logical result of the paranoic "constitution."

The development of paranoic states was summarized by Meyer[10] as follows:—"A. Feeling of uneasiness, tendency to brooding, rumination and sensitiveness, with inability to correct the notions and to make concessions —paranoic constitution and paranoic moods. B. Appearance of dominant notions, suspicious or ill balanced

8. Kraepelin, E.: Die Erscheinungsformen des Irreseins. Zeitschrift für die gesamte Neurologie und Psychiatrie. December, 1920.
9. Bleuler, E.: Affectivität, Suggestibilität, Paranoia. Translated by Charles S. Ricksher. New York State Hospitals Bulletin. February, 1912.
10. Meyer, Adolf: Paranoia and Paranoid States. The Modern Treatment of Nervous and Mental Diseases. White and Jelliffe. 1913.

aims. C. False interpretations with self-reference and tendency to systematization, without or with D. Retrospective or hallucinatory falsifications, etc. E. Megalomanic developments or deterioration or intercurrent acute episodes. F. At any period antisocial and dangerous reactions may result from the lack of adaptability and excessive assertion of the sidetracked personality."

Freud sees in paranoia a reversion to the homosexuality of the developmental period of the individual with a projection of symptoms resulting from mental conflicts due to a repression of complexes. He described the sexuality of the infantile period as being purely autoerotic in character, the sexual interests of the child being centered in its own body. From this stage the object of interest is gradually transferred to other individuals of the same sex, the normal attraction to the opposite sex being a final development of later years. Freud believes that in paranoia there is a fixation in one of these early transitional stages. "Persons who cannot rise completely out of the stage of narcissism and are thus prematurely fixed or arrested in the evolution of their dispositions, are exposed to the danger that a flood of libido which finds no outlet, sexualizes their social tendencies and reverts the sublimations achieved in the course of the development."[11] The resulting mechanisms may be looked upon as defense reactions. The subconscious homosexual longings of the individual are repressed but finally admitted to full consciousness in the form of a projection, the sexual object usually being accused of persecution, thus justifying the attitude of the paranoic towards the cause of his troubles. In erotomania the antagonism is directed not against the homosexual object but upon some person of the opposite sex. Freud interprets the delusions of jealousy of the alcoholic as an evidence of homo-

11. Meyer, Adolf: Paranoia and Paranoid States. The Modern Treatment of Nervous and Mental Diseases. White and Jelliffe. 1913.

sexual attraction, the individual justifying himself by the charge that it is his wife and not himself who is the guilty one. The delusions of grandeur he looks upon as a sweeping denial of all extraneous influences, the individual building a defense for himself by assuming a self-aggrandizement that leaves no room for homosexual objects. Perhaps these mechanisms are, as Meyer suggests, only another expression of the well recognized and more or less normal tendency to accuse others of being at fault in some way when what we do ourselves goes wrong. Certainly, if nothing more, they are exceedingly ingenious and interesting theories. One cannot but be impressed by the extraordinary skill of Freud in discovering the sexual origin of almost any mental process with which we are familiar. The ready facility with which his study of sexual conflicts and repressions can be shown to serve as a complement to the anatomical, symptomatic, and prognostic hypotheses of Kraepelin is also worthy of note.

As has already been said, there is considerable question as to how much, if anything, remains of the old-time paranoia concept. The uncertainties attending diagnosis have given rise to the modifying term "paranoid" which has been very generally used for many years. It should be remembered that paranoia when at its best only constituted approximately two per cent of all psychoses reported from institutions. These various considerations have resulted in its not having a distinctive place in the classification adopted by the American Psychiatric Association and it has been given official recognition as follows:—

"From this group should be excluded the deteriorating paranoid states and paranoid states symptomatic of other mental disorders or of some damaging factor such as alcohol, organic brain disease, etc.

"The group comprises cases which show clinically

fixed suspicions, persecutory delusions, dominant ideas or grandiose trends logically elaborated and with due regard for reality after once a false interpretation or premise has been accepted. Further characteristics are formally correct conduct, adequate emotional reactions, clearness and coherence of the train of thought."

A study of the statistics of American hospitals shows quite clearly the importance which should be attached to the paranoid conditions. During 1918 and 1919 there were 13,588 admissions to the thirteen New York state hospitals. Two hundred and fifty-six, or 1.88 per cent, of these were cases of paranoia or paranoid conditions. During a period of eight years there were 49,640 admissions of which 1,240, or 2.5 per cent, were paranoid conditions. In Massachusetts sixty-four, or 2.12 per cent, of the 3,011 admissions during 1919 were reported as paranoid conditions. In twenty-one hospitals in other states there were 18,336 admissions. Of these, 789, or 4.3 per cent, were paranoid conditions. These statistics show quite a small admission rate for these psychoses in New York and Massachusetts. The rate in other state hospitals is noticeably higher. As the percentage for dementia praecox is considerably lower in the reports from these institutions than it is in Massachusetts and New York, it is fairly reasonable to assume that many cases shown as paranoid forms of dementia praecox in Massachusetts and New York are classified with the paranoid conditions in the other states. If we consider the total admissions from all of the hospitals in question, we find 2,093 paranoid conditions in all, constituting 2.94 per cent of a total of 70,987 cases. It has already been shown that paranoia, at a time when it was a well recognized entity, constituted only 1.9 per cent of over eighty-four thousand consecutive admissions. This clinical grouping has, therefore, obviously been enlarged by adding paranoid conditions which could not probably be classified as well recognized types of other psychoses.

CHAPTER XV

THE EPILEPTIC PSYCHOSES

Ancient history contains numerous references to epilepsy. The "Morbus sacer" of the Romans was apparently a subject of great interest to Hippocrates,[1] who wrote, over two thousand years ago, "The sacred disease appears to me to be no wise more divine nor more sacred than other diseases; but has a natural cause, from which it originates like other affections. Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like other diseases." Presumably for a somewhat similar reason the disease was also referred to as the "Morbus Sideratus," it being thought that those affected were "star struck" or smitten in some mysterious and supernatural manner. By others it has been suggested that the theory regarding the divine origin of the disease was attributable to the seizures which always preceded the prophesies of the priests of Apollo. Herodotus is responsible for the statement that Cambyses, the king of the Persians, was subject to the "sacred disease" from birth. Such historians as Hippocrates and Euripides have definitely established the status of Hercules as a confirmed epileptic. "Morbus Herculeus" was one of the earliest designations of the disease. It was referred to by Plutarch in his writings. Suetonius describes the emperor Caligula as unquestionably afflicted with epilepsy. No less an authority than Lombroso speaks of Napoleon, Molière, Julius Caesar, Petrarch, Peter the Great, Mohammed, Händel, Swift, Richelieu, Charles V. Flaubert, Dostoieffsky and St. Paul

1. Tuke, D. Hack: A Dictionary of Psychological Medicine. 1892.

as all being victims of the same affection. Truly this is a noble assemblage,—one which might readily make the disease fashionable!

Maudsley ("Body and Mind") was convinced that Swedenborg suffered from a form of epileptic insanity. The following quotation from his diary would lend some color to that theory:—"There happened to me something very curious. I came into violent shudderings, as when Christ showed me His Divine Mercy. The one fit followed the other ten or fifteen times." After his fifty-fifth year, according to Maudsley, Swedenborg was permanently insane. The historian Sloan in his "Life of Napoleon" accepts as an established fact the statement that this great military strategist was an epileptic. Appian's "Roman History" certainly justifies Lombroso's reference to Julius Caesar: "At length, whether he lost all hope, or else for the better preservation of his health, never more afflicted with the falling sickness and sudden convulsions than when he lay idle, he resolved upon a far distant expedition against the Gatae and the Parthians." Washington Irving in speaking of some of the peculiar experiences of Mohammed suggests that, "Some of his adversaries attributed them to epilepsy." Even a very brief review of the historical aspects of this disease should perhaps not omit the contribution made by Shakespeare: "My Lord is fallen into an Epilepsie. This is his second Fit." *(Othello)*

Epilepsy and the mental disturbances associated with it are so intimately related that they can hardly be considered separately. Notwithstanding that fact it must be admitted that there is no sharply circumscribed clinical entity properly definable as epilepsy. Nor is there anything distinctive about the psychotic manifestations occurring during the course of that disease, although Tuke's Dictionary mentions over thirty different varieties. In the most exhaustive study of epilepsy ever made

in this country Spratling[2] reported that memory defects were noted in ninety per cent of the patients examined by him. It should be borne in mind that the group studied did not include any committed mental cases. He found from eight to ten per cent so slightly affected as to be legally "sane," "except at the brief moment of attack." Fifty per cent were mentally incompetent with rational intervals and forty per cent were "continually irresponsible." This latter class included from twenty to twenty-five per cent of imbeciles and idiots and from fifteen to twenty per cent recognizable as insane "by law and medicine alike." The prevalence of mental disease in a hospital population composed exclusively of epileptics is shown by his statement that of 801 patients examined at Craig Colony forty-one could not tell their own names; 166 did not know their age; 267 could not name the year, 263 the month, and 226 the day of the week; 238 did not know where they were; 378 were unable to state the year of their birth, 183 the last place of residence, 219 the name of the institution, and 248 the length of time there; in addition to this, 224 could not write well enough to sign their own names. It is interesting to note that the disease had its onset in 38.5 per cent of his cases before the age of ten years, in 43.5 per cent between the ages of ten and twenty, and in 9.5 per cent between the ages of nineteen and twenty-nine. Gowers found that seventy-six per cent developed symptoms before the age of twenty. Spratling classified the mental conditions found in epileptics as follows:—Psychic epilepsy, epileptic automatism, pre- and postparoxysmal mental disturbances, paroxysmal states (epileptic mania), and interparoxysmal conditions. The latter included transitory ill-humor, slight dulling or clouding of the intellect, feeblemindedness, imbecility, idiocy, epileptic dementia and acute confusional insanity which he says be-

2. Spratling, William P.: Epilepsy and its Treatment. 1904.

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longs to the manic-depressive group. He warns against the danger of classifying as dementia conditions due entirely to the use of bromides.

L. Pierce Clark [3] looks upon epilepsy as the logical development of a well defined individual make-up described as the "epileptic constitution" and existing from the earliest childhood. In support of that theory he has reviewed the contributions of other writers on this subject. He found that Vogt called attention to the epileptic "poverty of ideas, prolonged reaction time, egocentricity, many religious reactions and acts of servility." Jung referred to a series of superficial associations, influencing the ideas of the patient, somewhat similar to those occurring in imbecility and sometimes observed in normal individuals of the uneducated class. Roemer speaks of a disturbance of "secondary identification" involving memory pictures with special sense recognition unimpaired. Eintinger described an essential poverty of affectivity and Wiersma, periodical variations in attentiveness. Ritterhaus defined the epileptic mental content as one of poverty of ideas, prolonged reaction time, egocentricity, emotional reactions and circumstantiality. Arndt included in the epileptic character peculiar inward fervor, characteristically egotistic in nature, and resembling the alcoholic temperament. Bianchi believed that the disease developed on a personality basis strongly suggesting the criminal type. He spoke of an inadaptability to the environment, the preponderance of individualistic instinct, cruelty, laziness, evil life, precocious and excessive development of the sexual instinct, irascibility and impulsiveness. Turner described an epileptic "temperament." He found these individuals to be egotistical, conceited, pretentious in conversation, emotionally unstable and sometimes obstinate or over-religious. Hart-

3. Clark, L. Pierce: Clinical Studies in Epilepsy. Psychiatric Bulletin. January, 1916.

mann and di Gaspero noted as prodromal manifestations, abnormal changes of temper, excitability, anxious fears, sudden depressions, restlessness, irritability, distrust, memory falsifications, and violent impulses. Voisin found that less than ten per cent of epileptics showed a perfect balance in the emotional make-up. Hübner expressed the opinion that true dipsomania occurs chiefly in epileptics. He found alternations in the character of the individual in from ninety to ninety-five per cent of his cases.

Clark's [4] conclusions were summarized by him as follows:—"1. There is more or less constant affective defect in all epileptics, sane as well as insane; that such defect is due to an inherent make-up of the psyche in which mainly an egocentricity and a highly sensitized feeling are given to the individual; and that from this constitutional make-up or alteration the ultimate deterioration of the psyche, intellectually as well as emotionally, is gradually developed, step by step, and if the state is not corrected that this finally and logically ends in so-called epileptic dementia. 2. The epileptic alteration is seen to proceed from the mental make-up or constitution of the individual epileptic long before his malady reaches the convulsive stage and that the one is but a further and final unfoldment of the former." As Clark expresses it, "The nucleus of this personality defect is a temperament of extreme hypersensitiveness and egotism and all that these two main characteristics entail . . . a personality defect which makes its possessor incapable of social adaptation in its best setting and which, if it remains uncorrected, renders the individual inadequate to make a normal adult life." He looks upon the epileptic reaction as a "more or less direct outcome of the epileptic's inability to stand the

4. Clark, L. Pierce: Clinical Studies in Epilepsy. Psychiatric Bulletin. January, 1916.

stress and harassments of life from which he seeks automatic or unconscious withdrawal." This exhibits itself as a loss of spontaneous interest, day-dreaming, lethargy, somnolence, etc., terminating finally in epileptiform attacks when the strain becomes too great. A rather complete description of the "epileptic character" appeared in Schüle's "Klinische Psychiatrie" in 1886.

An analysis of these mental mechanisms leads naturally to certain therapeutic indications. In view of the history of the bromide therapy, since the time of its introduction by Laycock as the ideal form of treatment in 1851, such suggestions should be given serious consideration. Clark advocates the early use of educational methods in correcting the defects of the epileptic constitution. Thus he would obtain control of the egocentricity and hypersensitiveness by reducing environmental stresses, teaching adjustment to the surroundings, and finding suitable and normal outlets for the spontaneous desires of the individual. He is of the opinion that in the apparently deteriorated cases mental interests can be restored and emotional and mental dilapidation greatly improved. He has reported a series of cases showing that the frequency and severity of seizure can be greatly influenced "with the more or less permanent arrest of the disorder in not a few cases."[5] A subsequent study of the mental mechanisms involved was summarized by Clark[6] in these words: "It is fairly obvious that the mental content in epilepsy proves that the epileptic regresses from the displeasurable difficulties of life, and in the first states of the fit the stress alone may be uncovered; whenever the patient reaches a deeper unconscious state, he gains the level of an easily recognized sexual striving."

5. Clark, L. Pierce: Clinical Studies in Epilepsy (Concluded). Psychiatric Bulletin. January, 1917.
6. Clark, L. Pierce: A Further Study of Mental Content in Epilepsy. Psychiatric Bulletin, October, 1917.

Kraepelin[7] would differentiate between "symptomatic" forms of epilepsy due to organic diseases, injuries or growths; and the "genuine" variety not associated with any coarse brain lesion. He describes as indications of impending attacks, occurring several hours or even days before, headache, irritable ill-tempered moods, general discomfort, weakness, palpitations, oppression, anxiety, vertigo, nausea, hot and cold sensations, sense deceptions of various kinds, muscular twitching, sexual excitement, disturbed sleep, unpleasant dreams, etc. Binswanger found these symptoms present usually in the severer forms of the disease. Finkh found them in twenty-five per cent of his cases. Psychic, sensory, motor and vasomotor aura are described. Kraepelin after discussing first the paroxysmal attacks occurring in the disease speaks of the various forms of psychic epilepsy as constituting the second important group of clinical manifestations to be considered. These conditions may be looked upon as pre- or post-epileptic insanity, depending on their relation to convulsions, or may be entirely independent of them or considered as equivalents.

The most common form of psychic epilepsy he describes as periodical ill-humor. It begins sometimes with sexual excitement (Ducosté). The patient becomes moody, surly, irritable, quarrelsome, gives up his work, refuses to eat and complains of everything around him. In some cases uneasiness, gloom or depression are manifested and suicidal tendencies may develop. Consciousness is clear although the patients complain that they cannot think or are confused and forgetful. Some have headache, perspire, show dilated pupils, vasomotor disturbances, nausea, etc. The picture is often complicated by alcoholic indulgence with attacks resembling dipsomania. This sometimes results in an epileptic clouded or dream state in which the patients become blustering,

7. Kraepelin, E.: Psychiatrie. Eighth edition, Vol. 3, 1913.

abusive, and violent or make senseless journeys. They may manifest a sudden impulse to wander from place to place without any apparent reason. Sexual excitement frequently occurs, with masturbation and exhibitionism, attacks on children or homosexual tendencies. Usually there is no recollection of these episodes. Occasionally expansive or ecstatic moods appear and rarely a flight of ideas is noted. These attacks of ill-humor usually last from a few hours to several days, often disappearing suddenly. Alcoholism always lengthens the duration. In some cases active hallucinations and clouding of consciousness occur. Dreams are common. Others show anxious states with hallucinations and sometimes well marked delusions. An actual delirium may appear, although usually only for a very short time. The hallucinations and delusions may persist for months, suggesting dementia praecox.

A second large group shows a more marked clouding of consciousness. These are the characteristic twilight or dream states of epilepsy. Thought is confused, desultory, retarded or incoherent. Sometimes there is a tendency to rhyme and repeat questions, or even a genuine flight of ideas. The mood may be depressed, anxious or irritable, although ecstatic states occur. The patient may become quiet, inaccessible, stuporous or cataleptic. Some, however, become excited. Later, defects of memory occur and amnesic periods may extend over a considerable length of time. The patellar reflexes may be increased and the pupils dilated and sluggish. There may be a contraction of the field of vision or disturbance of color sense, tactile sensation, smell and taste, with muscular weakness, Babinski reflexes, speech defects, dizziness, uncertain gait, nystagmus, etc. Somnambulism is sometimes encountered in epilepsy, although it is strongly suggestive of hysteria. The great majority of cases present the picture of a simple dreamy stuporous

condition. Apprehension is clouded, the patients become confused, cannot control their thoughts, mistake the persons around them, lose themselves on the street, and wander away. They destroy their clothes, undress in the street, etc. Sexual excitement, exhibitionism and masturbation are common. Characteristic dream states may appear as equivalents.

A delirious confusion with hallucinations and delusions often develops. Some cases have a very strong religious coloring and believe themselves to be in heaven or hell—hear the voice of God, angels, etc. Grandiose ideas may appear and wonderful adventures are narrated. The mood is variable and may be either anxious, cheerful or erotic. There is a marked tendency to violence and the patients may be very restless and agitated. Delusions are common and often lead to suicidal attempts. Some exhibit an anxious delirium accompanied by numerous hallucinations. The patient is clouded as well as disoriented and delusions develop early. Fabrications sometimes appear in this condition. These deliria may last a few hours or several weeks. Profound and more or less long continued epileptic stupors may complicate the situation.

A "conscious delirium" of longer duration is observed in some instances. The sensorium is not so much clouded, and the patient appears quite clear. Hallucinations and illusions usually develop early in the attack. Pleasurable, grandiose ideas often appear. The attitude in a general way resembles that of a confused disorientation. Anxious moods may develop, or rarely cheerful tendencies. Consciousness becomes dreamy, with hallucinations of a religious coloring. Patients with an apparently clear sensorium may commit numerous foolish or even criminal acts without any apparent insight into their significance. Such conditions as this may last weeks or months. Self-accusation may occur between attacks. These individuals

are quite likely to start on absolutely aimless journeys which may be the outcome of an alcoholic debauch. The dream state in such cases may have a decided alcoholic coloring with characteristic hallucinations or humorous tendencies. This may be mixed with religious ecstatic manifestations. Dream states only occur once or twice during the lifetime of an epileptic or may be comparatively frequent. Many patients never have them.

Aschaffenburg found fainting attacks in seventy-four per cent, convulsions in forty-two per cent, stupors in forty-four, petit mal in fifty-eight, dream states in thirty-six, and ill-humor in from sixty-four to seventy per cent of his cases. In his Munich clinic Kraepelin studied 515 epileptics. Eighty-six and eight-tenths per cent of them had attacks of unconsciousness, probably often reported as convulsions, 23.3 per cent had dizzy spells, 9.7 per cent stupors, 15.1 per cent petit mal, 3.3 per cent attacks of various kinds without unconsciousness, 16.5 per cent dream states, 1.9 per cent somnambulisms, 36.9 per cent ill-humor, 13.8 per cent excitements, mostly alcoholic complications, and 2.5 per cent had status epilepticus.

An epileptic weakmindedness develops in many cases. The field of thought is contracted and egocentric in character with delayed associations as shown by Jung. The patient is egotistical, interested in petty details, and strongly inclined to religious tendencies. He always minimizes the severity of the disease which, in his opinion, is improving rapidly. He is likely to develop mild paranoid ideas and feels that he has been mistreated or that others are prejudiced against him. These individuals are usually moody, irritable, dull, emotionally unstable and excitable. They are often overactive but not industrious. Many show a persistent "wanderlust." Werther reported that between seven and eight per cent of his cases were tramps or beggars. Quite a few show criminal tendencies. They nearly always have a marked

susceptibility to alcohol which greatly aggravates their symptoms. Kraepelin is inclined to look upon the epileptic personality as a result of the disease and not the soil in which it develops.

In the more advanced deteriorations or epileptic dementias there is a marked mental dulness with poverty of thought, loss of memory, irascibility and occasional violence. Kraepelin refers to a genuine "epileptic physiognomy" which is often observed. Strabismus, nystagmus, ptosis, tremors and many other neurological symptoms are frequently found. Clark and Scripture have described a characteristic "voice" in epilepsy. Besta found a subnormal temperature in sixty-six per cent of his cases. Very elaborate studies of the blood have been reported from time to time. The secretions and excretions have been made the subject of exhaustive research and the changes in metabolism have been gone into thoroughly.

The pathology of epilepsy has been given careful consideration by Alzheimer. In cases of status epilepticus he found extensive acute alterations, more particularly in the Betz cells, with swelling of the neurones, crumbling of the Nissl bodies, and dislocation of the nucleus to the apex. Here and there the ganglion cells were entirely destroyed and others showed regressive changes. Karyokinetic figures are seen in the glia cells, which are usually swollen, show ameboid changes and contain degenerative products. Accumulations of broken down cell products are found around the vessels. A sclerosis of the cornu ammonis, usually unilateral, was reported by Bourneville in 14.8 per cent, by Pfleger in fifty-eight per cent, and by Alzheimer in from fifty to sixty per cent of the cases of epilepsy examined. This consists of an atrophy of the cells in a well defined area and their replacement by a network of fibres. The cells are shrunken or entirely gone, while there is a great increase in the neu-

roglia elements with many free nuclei. The walls of the vessels are thickened and "stäbchenzellen" appear. The significance of these findings is not known. Nissl looks upon them as only a part of a general involvement of the cortex. Widespread cell changes were frequently reported by both Nissl and Alzheimer. A marked increase in the neuroglia has been found particularly in the superficial layers of the cortex,—the so-called "marginal gliosis" of Chaslin. The vessels show an intimal proliferation and a thickening of the walls, with occasional mast-cells in the lymph spaces. Ranke has called attention to the presence or persistence of "Cajal" cells in the ordinarily cell free layers of the cortex. These are large transversely placed ganglion cells, common in the superficial layers of the cortex of the newborn but not found in the normal adult brain. This condition is looked upon as a cortical development defect. These so-called "Cajal" cells are also found in some of the mental deficiencies. Nevertheless it must be conceded that there are no definitely characteristic pathological changes so constant as to render certain the differentiation of this disease post-mortem.

No forms of insanity perhaps are clinically so difficult and unsatisfactory from the standpoint of classification as are the epileptic psychoses. The various mental manifestations of the disease may very logically be described as: 1. Pre-paroxysmal episodes, 2. Paroxysmal states, 3. Post-paroxysmal episodes, 4. Inter-paroxysmal conditions to be specified, as excitements, depressions, anxieties, confusion, stupor, dream states, paranoid conditions, etc., and 5. Epileptic deterioration. There is some question as to whether the various psychic epilepsies, so called, are sufficiently clear-cut to constitute clinical entities.

The delimitation of these psychoses for statistical pur-

poses is described in the Association's manual as follows:—

"In addition to the epileptic deterioration, transitory psychoses may occur which are usually characterized by a clouded mental state followed by an amnesia for external occurrences during the attack. (The hallucinatory and dream-like experiences of the patient during the attack may be vividly recalled.) Various automatic and secondary states of consciousness may occur.

"According to the most prominent clinical features the epileptic mental disorders should therefore be specified as follows:—

"(a) Epileptic deterioration: A gradual development of mental dullness, slowness of association and thinking, impairment of memory, irritability or apathy.

"(b) Epileptic clouded states: Usually in the form of dazed reactions with deep confusion, bewilderment and anxiety or excitements with hallucinations, fears and violent outbreaks; instead of fear there may be ecstatic moods with religious exaltation.

"(c) Other epileptic types (to be specified)."

During a period of sixteen years in the New York state hospitals (ending October 1, 1888) 3,167 of 84,152 admissions were cases of "epilepsy with insanity." This meant an admission rate of 3.76 per cent. It must be borne in mind, however, that the differentiation between epilepsy with insanity and psychoses clearly due to epilepsy was not attempted at that time. During a subsequent period of eight years in the same institutions, when what is essentially the present classification was in use, the admission rate for epileptic psychoses was 2.42 per cent. In 1919 with 3,011 first admissions to the Massachusetts state hospitals only fifty cases (1.66 per cent) were reported as showing psychoses due to epilepsy. Six hundred and twelve cases, constituting 3.33 per cent of 18,336

first admissions, were reported by twenty-one hospitals in other states. An analysis of a total of 70,987 first admissions in forty-eight state hospitals therefore showed that 1,865, or 2.62 per cent, were epileptic psychoses. After reading the statements contained in various textbooks regarding the extraordinary frequency of epileptiform seizures in dementia praecox, it is difficult to escape the conclusion that the percentage of epileptics has been underestimated rather than exaggerated.

CHAPTER XVI

THE PSYCHONEUROSES AND NEUROSES

The words neurosis, psychosis and psychoneurosis are of obscure origin and have had a varied significance from time to time. Murray[1] defines psychosis as a psychological term indicating "a change in the psychic state; an activity or movement of the psychic organism, as distinguished from neurosis" which he speaks of as a "change in the nerve-cells of the brain prior to, and resulting in, psychic activity." Huxley in discussing this subject in 1871 made the following differentiation: "In all intellectual operations we have to distinguish two sets of successive changes—one in the physical basis of consciousness and the other in consciousness itself; one set which may, and doubtless will, in course of time, be followed through all its complexities by the anatomist and the physicist, and one of which only the man can have immediate knowledge. As it is very necessary to keep a clear distinction between these two processes, let the one be called neurosis and the other psychosis."

Von Feuchtersleben used the latter word in its present psychiatric significance in his "Lehrbuch der Aertzlichen Seelenkunde" in 1845. Its repeated appearance in the first volume of the *Allgemeine Zeitschrift für Psychiatrie* in 1844 would strongly suggest a frequent use of the term in the German psychiatry of that day. It was unknown in English works until quite recently, although the word is found in Maudsley's "Responsibility in Mental Diseases" (1874)—"No wonder that the criminal psy-

1. Murray, James A. H.: A New English Dictionary. 1888.

chosis which is the mental side of the neurosis, is for the most part an intractable malady, punishment being of no avail to produce reformation." Lewes, in "The Problems of Life and Mind" published after his death in 1879, makes a very significant remark: "Pathologists call it a psychosis, as if it were a lesion of the unknown psyche." Clouston's 1911 edition makes no reference to psychoneuroses as such.

The word neurosis has been much more extensively employed in medical literature. William Cullen, a well-known professor in the University of Edinburgh, in his "First Lines of the Practice of Physic" in 1774, said: "I propose to comprehend, under the title of neuroses, all those preternatural affections of sense or motion which are without pyrexia, as a part of the primary disease." In his "Synopsis Nosologicae Medicae" in 1785 he divided diseases into four general classes: Pyrexia or febrile diseases; neuroses or nervous diseases, as epilepsy; cachexiae or diseases resulting from bad habit of the body, as scurvy; and locales, or local disease, as cancer. Brachet,[2] who was one of the earlier writers on the subject of hysteria, defined that disease in the following words in 1847: "Hysteria is a neurosis of the cerebral nervous system, which manifests itself more or less brusquely by crises of general chronic convulsions and by the sensation of a globe ascending in the course of the oesophagus, at the upper extremity of which it becomes fixed, causing there a menace of suffocation." Briquet, another French writer, expressed somewhat similar views in 1859. The word neurosis as now used may be said to refer to a functional disturbance of the nervous system, which, if directly due to etiological mental factors, is spoken of as a psychoneurosis.

Just what diseases are to be included under the grouping of neuroses and psychoneuroses is another question.

2. Brachet, J. L.: Traité de l'hysterie. 1847.

Practically all of the older authorities, at least, have agreed on hysteria and neurasthenia. When we get beyond this point, however, there are wide differences of opinion. Oppenheim, in his second edition, under the heading of neuroses, included hysteria, hypnotism and hypnosis, neurasthenia, morbid fears, imperative ideas, astasia-abasia, traumatic neuroses, hemicrania, headache, vertigo, epilepsy, eclampsia, chorea minor, Huntington's disease, paralysis agitans and many other conditions.

Krafft-Ebing[3] was responsible for the following delimitation of the psychoneuroses, which he admits to be "somewhat dogmatic" and has used for many years largely for didactic purposes: "1. Parasitic, accidentally acquired diseases in individuals whose cerebral functions were previously normal and whose disease could not be foreseen. 2. Disease based upon temporary disposition (grave physical disease and the simultaneous action of powerful exciting causes), hereditary predisposition not excluded, but only latently present in the brain of one easily affected, but previously normal in its functions. 3. Tendency to cure of the disease and infrequency of relapses. 4. Slight tendency to transmission to descendants, and when it occurs, in benign forms (psychoneuroses). 5. Typic course of the disease picture. Mania, as a rule, arises from a melancholic initial stage; and so-called secondary conditions are the terminations of primary conditions. The disease picture, even when it appears, has a certain duration and independence. The whole course of the disease is quite narrowly limited in time, and goes on either to recovery or dementia. 6. No tendency to periodicity of the attacks or the grouping of symptoms. 7. Sanity and insanity are sharply defined, and in striking contrast." In this group he includes mania, melancholia, acute curable dementia and primary

3. Krafft-Ebing, R. von: Lehrbuch der Psychiatrie. Translated by C. G. Chaddock. 1905.

hallucinatory delirium. He describes hysteria, neurasthenia, etc., under the psychic degenerations with paranoia and speaks of them as constitutional neuroses. His psychoneuroses certainly do not come within the general acceptation of the term at this time but represent the views of a certain school of German writers.

More recently the words neurosis and psychoneurosis have been used as synonymous terms by many writers. Kempf has even gone so far as to suggest discarding the word psychosis completely. In any event, the view that we should only designate as psychoneuroses such functional conditions as are clearly due to psychic causes seems to be gaining ground. The term neurosis is generally applied at this time to diseases primarily physical rather than mental in their symptomatology. The prominence of psychogenic factors has been given great weight in recent literature. In the second edition of his work on Psychiatry, Diefendorf makes the following statement: "Neuroses are commonly designated as a group of diseases characterized by changing and transitory nervous disturbances, to be distinguished from psychoses by the fact that the symptoms do not involve the mental field. But in practice psychoses without nervous symptoms or neuroses without mental symptoms are not encountered."

Since the term was first introduced by Morel in 1860, many French writers, such as Régis and Magnan, have emphasized the importance of the insanity of degeneracy. This included moral insanity, the sexual perversions and various other psychopathic conditions as well as the obsessions, compulsions, impulsions, phobias, doubts, etc., now recognized as psychogenic in origin and usually assigned collectively to the psychoneuroses under the designation of psychasthenia. In his sixth edition Kraepelin included both hysteria and epilepsy in his group of neuroses, while constitutional peculiarities of character, as well as compulsive and impulsive insanity with sexual

perversions, were classified under the psychopathic states (degenerative insanity). In his seventh edition epilepsy was described as a separate entity. In the eighth edition we find a new grouping. The psychogenic conditions are divided into nervous exhaustion (neurasthenia), the dread neuroses, induced insanity, the paranoid conditions of the deaf, the traumatic neuroses, the prison and the "querulant" psychoses. Hysteria now appears separately. Under the constitutional psychopathic disorders he discusses nervousness, compulsion neuroses, impulsive insanity and the sexual perversions. In view of these varying conceptions which are fairly representative of the literature of the day, we are certainly on safe ground in confining a consideration of the psychoneuroses to hysteria, neurasthenia, psychasthenia and various other conditions characterized by anxiety and fears.

Hysteria has long been a subject of interest and controversy. It has been a topic of discussion since the time of Esquirol and even Sydenham. It was studied exhaustively by Brachet in 1847. Briquet in 1859 defined hysteria as "an encephalic neurosis whose apparent phenomena consist principally in the perturbation of the vital actions which serve to manifest the affective sensations and passions." Lasègue wrote an elaborate treatise on the subject in 1864. It was discussed in detail later by Möbius, Charcot and many others. To Möbius hysteria was "a congenital morbid mental state where diseased bodily conditions are produced by ideas." During the last twenty or thirty years many new and interesting theories have been advanced. Binet sees in hysteria a condition of double consciousness, the two states almost entirely independent and separated by periods of amnesia. Janet's [4] interesting conception of the disease is covered in full in his definition: "Hysteria is a

4. Janet, Pierre: État mental des hystériques. Translated by C. R. Corson. 1901.

mental disease belonging to the large group of the diseases due to weakness, to cerebral exhaustion; it has only rather vague physical symptoms, consisting especially in a general diminution of nutrition; it is above all characterized by moral symptoms, the principal one being a weakness of the faculty of psychological synthesis, an abulia, a contraction of the field of consciousness manifesting itself in a particular way; a certain number of elementary phenomena, sensations and images, cease to be perceived and appear suppressed by the personal perception; the result is a tendency to a complete and permanent division of the personality, to the formation of several groups independent of each other; these systems of psychological factors alternate, some in the wake of others, or coexist; in fine, this lack of synthesis favors the formation of certain parasitic ideas which develop completely and in isolation under the shelter of the control of the personal consciousness and which manifest themselves by the most varied disturbances, apparently only physical." He summarized this as a complete doubling (dédoublement—literally undoubling, as translated by Corson) of the personality. On analysis there is fundamentally much in this view strongly suggestive of the theories of Breuer and Freud.

Babinski interprets hysteria as a purely psychic functional disturbance due to suggestion. He would eliminate from this field all symptoms which cannot be induced by suggestion and relieved by methods of persuasion. The ordinary physical manifestations of the disease, such as anesthesia, hyperesthesia, paralyses, convulsions, etc., Babinski describes as stigmata. His theories lead him to suggest "pithiatism" as the correct name for hysteria.

A revolutionary and epochmaking contribution to the literature of this important subject was the publication of their "Studien über Hysterie" by Breuer and Freud in 1895. The latter has made various further exposi-

tions of his views more recently. What the ultimate outcome of the hysteria problem may be, only time can determine. No consideration of the subject, however, is complete, nor should any definite conclusions be attempted, without a thorough understanding of theories which have a material bearing on the mental mechanisms involved in all of the psychoneuroses. Breuer and Freud advanced the suggestion that hysteria is always the result of a psychic trauma. The mechanisms involved may be very briefly summarized. Studies of everyday life show that the peculiar amnesia often observed for certain names and events does not mean usually in the average individual a mere fading of memory with the lapse of time. Freud found that the inability to recall things in such cases is largely due to the fact that they are for some reason or other unpleasant in nature and therefore not desirable to remember. They are accordingly pushed into the background as it were, by burying them in the subconscious strata of the mind and intentionally obliterating them from memory. When the ordinary well balanced individual is confronted with an unpleasant situation he meets it as best he can, by the exhibition of normal reactions of various sorts. He treats the matter lightly, dismisses it as a joke or "laughs it off." His dignity may be maintained by a display of anger or resentment. The mental equilibrium may be restored by a resort to profanity, tears, violence, or even physical flight. An emotional outlet in the form of hate or thoughts of revenge may be necessary to settle the question and finally dispose of it by "getting it off the mind." There are unpleasant situations which for various reasons cannot be met and treated in this ordinary way. The mental shock of the "psychic trauma" may, for instance, be the result of an occurrence which is so distasteful and repulsive as to be incompatible with the present existence. There being no other escape from such a difficulty, it is

rejected by the psychic censor, to use Freud's expression, and repressed or forced into the subconscious. This is the inadequate reaction which takes place in hysteria and leads to a dissociation and rudimentary splitting of the consciousness. Freud finds that in practically every instance the repressed and painful idea is due to a psychic trauma resulting from some incident of a sexual nature; furthermore, that it usually dates back to the time of childhood. These buried sexual complexes are completely disposed of by what Freud speaks of as the process of "conversion," the associated affect being radiated, as it were, into the physical sphere where it is converted into a memory symbol in the form of an hysterical symptom. The mental symptoms of the disease he explains as the results of the elaboration and development of hypnoid states or erotic day-dreams of the individual. Freud[5] summarized his views in a series of formulae "which strive to progressively exhaust the nature of hysteria" as follows:—

"1. The hysterical symptom is the memory symbol of certain efficacious (traumatic) impressions and experience.

"2. The hysterical symptom is the compensation by conversion for the associative return of the traumatic experience.

"3. The hysterical symptom—like all other psychic formations—is the expression of a wish realization.

"4. The hysterical symptom is the realization of an unconscious fancy serving as a wish fulfilment.

"5. The hysterical symptom serves as a sexual gratification, and represents a part of the sexual life of the individual (corresponding to one of the components of his sexual impulse).

5. Freud, Sigmund: Sammlungen kleiner Schriften zur Neurosenlehre. 1906 and 1909. Translated by A. A. Brill. 1909.

"6. The hysterical symptom, in a fashion, corresponds to the return of the sexual gratification which was real in infantile life but had been repressed since then.

"7. The hysterical symptom results as a compromise between two opposing affects or impulse incitements, one of which strives to bring to realization a partial impulse, or a component of the sexual constitution, while the other strives to suppress the same.

"8. The hysterical symptom may undertake the representation of diverse unconscious nonsexual incitements, but can not lack the sexual significance."

The practical application of these theories of Freud is illustrated by the line of treatment suggested. By his method of "catharsis" the repressed and forgotten painful idea is restored to the conscious sphere of the mind and a normal reaction brought about by "affording an outlet to the strangulated affect through speech." To accomplish this result it is obviously necessary to find out what the psychic trauma was that originally caused the repression. For this purpose he uses psychoanalysis, hypnosis and the study of dreams. Psychoanalysis is nothing more or less, as Campbell says, than a sort of "scientific confessional", a complete analysis of the mental mechanisms of the individual in a search for the buried complexes. It has largely been preferred by Freud to hypnosis, the latter often being impracticable for various reasons. The association test of Sommer was very successfully adapted to the determination and explanation of buried complexes by Jung. Freud's views as to the analysis of dreams in the unravelling of mental mechanisms are set forth in full in his "Traumdeutung" (1900). He describes a dream as being "the more or less disguised fulfilment of a suppressed wish." Owing to the activities of the psychic censor we may have either manifest or latent dreams. The former are recalled on waking; the latter are distorted or forgotten and indicate the

repressed wish. He classifies dreams as, those which represent an unexpressed wish as being fulfilled, those which represent the realization of the wish in some entirely concealed form and those which represent it in a form insufficiently or partly concealed. Freud justified his emphasis of the sexual element in his studies of the psychoneuroses by the publication of his "Drei Abhandlungen zur Sexualtheorie." In this he calls attention to the neglected importance of sexual factors in the developing mentality of the child and shows that these influences are manifested long before the age of puberty. He even maintains that the normal child is homosexual as well as incestuous at a certain stage. These erotic impulses are largely unconscious and become submerged, playing an important part later in the development of the neuroses.

Kraepelin has devoted one hundred and sixty pages of his work on psychiatry to a consideration of the subject of hysteria. The mental symptoms of the disease are all described as being definitely associated with twilight or dream states (Dämmerzustände). These he refers to as including somnambulisms, definite excitements, attacks assuming a characteristic silly or "puerile" form, confusions, deliria of various kinds, the Ganser complex, prison stupors and double personalities (retrograde amnesia). He does not accept Freud's views as to the influence of the sexual life in the etiology of hysteria.

Neurasthenia was first described by Beard of New York in 1880. As has already been shown, it was referred to by Kraepelin as one of the psychogenic neuroses. Freud is much inclined to question the existence of such an entity as the classic neurasthenia described by Beard. He feels that most of the cases can be traced to a definite association with some other psychosis. He

does, however, recognize a neurasthenic complex which is entirely sexual in origin and attributes it to the excessive masturbation of adult life. The symptoms, according to Freud, are a result of the inadequate sexual relief afforded by the habit, and are those of nervous exhaustion, a sense of pressure or fulness in the head, spinal irritation, hyperesthesias, paresthesias, diminished sexual power, and occasionally a mild form of emotional depression. He would also differentiate another psychoneurosis of sexual origin—the anxiety neurosis (Angstneurose). He mentions an increased irritability as a prominent symptom often in the form of an oversensitiveness to noises. The characteristic feature, however, is a state of anxious expectation. This may manifest itself in a mere uneasiness and general tendency towards pessimism or may approach a state of hypochondriasis with paresthesia and annoying somatic sensations. Fear of sudden death may be experienced. There may be physical symptoms such as disturbed heart action (palpitation or tachycardia), disturbance of respiration (dyspnea or asthmatic attacks), profuse perspiration, periods of trembling, dizziness, attacks of inordinate appetite, diarrhea, etc. Nocturnal frights are common. The symptoms as outlined above are accompanied by a marked anxiety. He finds anxious psychoses usually in women, in the form of virginal fears in adults, the anxiety of the newly married, similar states occurring in widows or intentional abstainers, and fears occurring at the climacterium. This condition in women he believes to be due as a rule to coitus interruptus or ejaculatio praecox. Similar anxieties in men, according to Freud, are due to abstinence, frustrated sexual excitement, coitus interruptus or senile conditions. Masturbation may also be a factor. He also admits that there are causes other than sexual, in the form of overwork, serious illnesses, etc. The mental

mechanism involved is a "deviation of the son
ual excitement from the psychic, and in the
utilization of this excitement occasioned by the

In 1903 Janet formulated his conception of
thenia, describing it as a clinical entity. In this
he included the obsessions of doubt, phobias, in
ideas, impulsive obsessions, compulsions and oth
tions described by various authors. The essent
anism to be considered, according to Janet, is a "
of the psychological tension." This results,
expresses it, in an inadequate perception of the
of the outside world. Meyer has spoken of psych
as "a lowering of general interest and tendency
nation over what is accessible to the patient in h
ory, but is not squarely met, and where the norma
tion is replaced by rumination, substitutive act
panics." These conditions are described by Freu
belonging to the "Zwangsneurose" or compulsion n
roses. The obsessing ideas force themselves into the con
sciousness of the individual, who is perfectly clear as to
their inconsistency but cannot escape them. These he
also looks upon as being of sexual origin and due to re-
pression as in hysteria. After the unpleasant idea is
repressed, however, the mechanism is different. Instead
of converting the concept into a bodily symbol, a defense
reaction displaces the affect from the painful thought,
connecting it with some entirely disinterested and in-
nocuous idea. This process he spoke of as substitution.
This transference, as in hysteria, takes place in the sub-
conscious and is not recognized by the patient as having
anything to do with his peculiar symptoms. Compulsive
ideas prevent the recurrence in thought, of the repressed
etiological factor. It must be conceded that these mech-
anisms are exceedingly interesting from a psychological
point of view. Freud's theories have, however, met with
a great deal of opposition, due apparently to the fact that

onceptions are based almost exclusively on the
of the sexual life on the human mind. The
stic and entirely consistent Freudian answer to
ion is that it is a "defense reaction." Without
g to determine the exact basis of the psycho-
he fact remains that their importance from a
c point of view cannot be questioned. They
in a large measure the field of observation
y the out-patient clinics and psychopathic hos-
hey played an exceedingly important part in
iatry of the late war.

ng out of consideration the mental mechanisms
, the American Psychiatric Association has en-
ed to collect statistical data relating to the vari-
psychoneuroses generally recognized, as is shown by
suggestions regarding their delimitation, in the
anual:—

"The psychoneurosis group includes those disorders in which mental forces or ideas of which the subject is either aware (conscious) or unaware (unconscious) bring about various mental and physical symptoms; in other words these disorders are essentially psychogenic in nature.

"The term neurosis is now generally used synonymously with psychoneurosis, although it has been applied to certain disorders in which, while the symptoms are both mental and physical, the primary cause is thought to be essentially physical. In most instances, however, both psychogenic and physical causes are operative and we can assign only a relative weight to the one or the other.

"The following types are sufficiently well defined clinically to be specified:

"(a) Hysterical type: Episodic mental attacks in the form of delirium, stupor or dream states during which repressed wishes, mental conflicts or emotional experi-

ences detached from ordinary consciousness break through and temporarily dominate the mind. The attack is followed by partial or complete amnesia. Various physical disturbances (sensory and motor) occur in hysteria, and these represent a conversion of the affect of the repressed disturbing complexes into bodily symptoms or, according to another formulation, there is a dissociation of consciousness relating to some physical function.

"(b) Psychasthenic type: This includes the compulsive and obsessional neuroses of some writers. The main clinical characteristics are phobias, obsessions, morbid doubts and impulsions, feelings of insufficiency, nervous tension and anxiety. Episodes of marked depression and agitation may occur. There is no disturbance of consciousness or amnesia as in hysteria.

"(c) Neurasthenic type: This should designate the fatigue neuroses in which physical as well as mental causes evidently figure; characterized essentially by mental and motor fatigability and irritability; also various hyperesthesias and paresthesias; hypochondriasis and varying degrees of depression.

"(d) Anxiety neuroses: A clinical type in which morbid anxiety or fear is the most prominent feature. A general nervous irritability (or excitability) is regularly associated with the anxious expectation or dread; in addition there are numerous physical symptoms which may be regarded as the bodily accompaniments of fear, particularly cardiac and vasomotor disturbances; the heart's action is increased, often there is irregularity and palpitation; there may be sweating, nausea, vomiting, diarrhea, suffocative feelings, dizziness, trembling, shaking, difficulty in locomotion, etc. Fluctuations occur in the intensity of the symptoms, and acute exacerbations constituting the "anxiety attack."

"(e) Other types."

The psychoneuroses occur very infrequently in institutions for mental diseases. In 49,640 first admissions to the New York state hospitals during a period of eight years, only 671 cases were reported as neuroses or psychoneuroses, constituting 1.35 per cent of the total. Of this number 29.97 per cent were of the hysterical type, 37.35 of the psychasthenic, 30.27 of the neurasthenic form, and 2.41 per cent were anxiety psychoses. In the Massachusetts hospitals during the year 1919, thirty-six, or 1.19 per cent, of the 3,011 admissions reported were neuroses or psychoneuroses. Of these, 44.83 per cent were of the hysterical, 24.14 of the psychasthenic, and 18.39 per cent of the neurasthenic forms. On analyzing 18,336 admissions to twenty-one hospitals in other states we find 297 cases of neurosis or psychoneurosis, 1.63 per cent of the total. Of these, 44.11 per cent were cases of hysteria, 28.28 of psychasthenia, 22.90 of neurasthenia and 4.71 per cent of anxiety psychoses. The neuroses or psychoneuroses constituted 1.42 per cent of over seventy thousand admissions to all institutions. Of the 1,048 psychoneuroses reported, 35.20 per cent were cases of hysteria, 33.68 of psychasthenia, 29.19 of neurasthenia, and 3.91 per cent of anxiety psychoses.

CHAPTER XVII

THE PSYCHOSES WITH PSYCHOPATHIC PERSONALITY

The introduction of the term psychopathic personality is probably to be attributed to the description of "Die Psychische Minderwertigkeiten" by Koch in 1893. These were referred to by Morel[1] as "Psychopathic Depreciations," a group in which he says Koch included "a very large number of these psychical manifestations, so varied in their nature and intensity which, without belonging to the class of mental diseases proper, cannot, nevertheless, be reconciled with the idea of perfect mental sanity." These were described as being either congenital or acquired and including psychopathic predisposition, psychopathic defect and degeneration. To congenital defects were attributed the "Eccentrics, disequilebrated, overscrupulous and capricious persons, foolish, misanthropes, redressers of wrong, reformers of society, etc." In the degenerative processes he included mental deficiencies both intellectual and moral. Meyer,[2] who based his conception of "constitutional inferiority" largely on the work of Koch, says that the latter by "Psychische Minderwertigkeiten" "meant those little defects which constitute the inferiority of the individual in the whole strife of life, that inferiority which does not allow him to come up to an actually efficient balance in the struggle of life. . . . They were oddities, peculiar

1. Morel, Jules: The Treatment of Degenerative Psychoses. International Congress of Charities, etc., Chicago, 1893.
2. Meyer, Adolf: Constitutional Abnormality. C. P. Obendorf. Discussion. State Hospitals Bulletin, March, 1910.

nicks in the personalities of the various people, and he designated those as constitutionally inferior." Koch in this grouping unfortunately included hysteria, psychasthenia and neurasthenia. Meyer eliminated these: "I wanted to do justice to the hysterias and psychasthenias which I could define as such, but I knew there was a whole group of cases in which the definition could not be pushed. I also knew that it was difficult to give the definition in the downward line towards imbecility, and since it was so very hard to give the definition in the individual cases, I thought that the least trouble would arise from making a relatively large group of 'inferiorities not sufficiently differentiated' and let those be entered under the heading of 'constitutional inferiority.'"

The original conception of this group was that it included intellectual defects which have subsequently been classified with the mental deficiencies, leaving only those cases showing purely psychopathic taints of a constitutional origin. There have been numerous other descriptions of these conditions. Ziehen [3] included under the psychopathic constitution "chronic, psychopathic conditions, which in their symptomatology and course not only involve defect of the affectivity but also of the intelligence, even though pronounced psychopathic symptoms, such as delusions, hallucinations, etc., do not intrude for any extended period. Where hallucinations and analogous symptoms do appear they are solitary and the patient retains insight into the condition." Ziehen's psychopathic constitution covers a very wide field, including not only hysteria and neurasthenia but epilepsy.

The psychopathic personalities as described today represent only a modern interpretation of conditions which have been given ample consideration in the psychiatric literature of the past. An early illustration of

3. Ziehen, Th.: Psychiatrie. 1911. Quoted by Hickson. Report of the Psychopathic Laboratory, etc., Chicago, 1917.

this fact is Pritchard's definition of "moral insanity" in 1835:—"A morbid perversion of the feelings, affections and active powers, without any illusion or erroneous conviction impressed upon the understanding; it sometimes coexists with an apparently unimpaired state of intellectual faculties." The psychopathic states were undoubtedly fully covered in Morel's description of the insanity of degeneracy in 1860. This he divided into cases arising from constitutional nervous temperaments, moral insanity, the feebleminded with or without morbid impulses, and those with criminal tendencies. This conception was well summarized by Diefendorf [4]:—"The disharmony of the intellectual and the moral faculties is one of the most striking features of degeneracy. As in the defects of the intellectual development, so in the moral sphere, the condition varies from a complete arrest of moral development to all forms of moral perversion and even to an abnormal development of the moral and emotional susceptibility. All of these conditions may exist, with a perfect development of the intellectual faculties. . . . The professional criminals should also, without doubt, be included in this class, as they present all possible varieties of moral perversions and anomalies, all of which may exist with preservation of the intellect and even with intellectual keenness."

Magnan described compulsions, impulsions and contrary sexual instincts as episodes of the insanity of degeneracy. The psychopaths were undoubtedly the "déséquilibrés" or ill-balanced individuals of Régis,[5] whose work on "Mental Medicine" included an exceedingly elaborate discussion of the so-called "borderline" conditions. "After maturity they are complex beings, heterogeneous, made up of disproportioned elements, con-

4. Diefendorf, A. Ross: Degenerative Insanity. Reference Handbook of the Medical Sciences. 1909.

5. Régis, E.: A Practical Manual of Mental Medicine. Translation of H. M. Bannister, 1894.

tradictory qualities and defects, and as over-endowed in some directions as they are deficient in others. Intellectually, they often possess in a very high degree, the faculties of imagination, of invention, and of expression, that is to say, the gifts of speech, the arts, and poetry; on the moral side, they possess a singular emotivity, or rather, sensibility. What they lack, more or less completely, is good judgment, the moral sense, and especially continuity or logical consecutiveness, a unity of direction in intellectual production and the actions of life. It follows, that in spite of their often superior qualities, these persons are incapable of conducting themselves in a rational manner, of following regularly the exercise of a profession that seems well beneath their capacity, of looking after their interests or those of their families, of carrying on business prosperously or of directing the education of their children; their existence, therefore, constantly recommencing, is one long contradiction between the apparent wealth of means and poverty of results. They are the utopians, the theorists, the dreamers, who are enamored with the best things but accomplish nothing. The public which sees only the brilliant exterior looks upon these individuals as artists and superior beings. The medal is reversed, however, to those who are compelled to associate with them and share their existence; they see their defects, their incapacities and evil tendencies, of which they are not merely the witnesses, but also the victims. Aside from their lack of mental poise these individuals also display an excessive emotional sensibility and an enfeeblement of psychic energy that reveals itself by a noticeable predominance of spontaneity over reflection and volition. Hence their inability, their instability, and their irresolution; hence also their alternations of apathy and activity, of excitement and torpor, their violent attacks of passion and their cries of despair for the most trivial and slightest reasons." Régis divided

the "psychic discordances" or disharmonies into the ill-balanced, the original and the eccentric. These were all included in the degeneracies of evolution. Clouston covers this same ground fully and in a somewhat similar manner in his "Unsoundness of Mind" (1911).

The insanities of degeneracy have also been given considerable space by such Italian writers as Lombroso, Bianchi, etc. Lombroso in "The Man of Genius" (1888) discussed this subject as follows:—"A theory, which has for some years flourished in the psychiatric world, admits that a large proportion of mental and physical affections are the result of degeneration, of the action, that is, of heredity in the children of the inebriate, the syphilitic, the insane, the consumptive, etc.; or of accidental causes, such as lesions of the head or the action of mercury, which profoundly change the tissues, perpetuate neuroses or other diseases in the patient, and, which is worse, aggravate them in his descendants, until the march of degeneration, constantly growing more rapid and fatal, is only stopped by complete idiocy or sterility. Alienists have noted certain characteristics which very frequently, though not constantly, accompany these fatal degenerations. Such are, on the moral side, apathy, loss of moral sense, frequent tendencies to impulsiveness or doubt, psychical inequalities owing to the excess of some faculty (memory, aesthetic taste, etc. (or defect of other qualities (calculation, for example), exaggerated mutism or verbosity, morbid vanity, excessive originality, and excessive preoccupation with self, the tendency to put mystical interpretations on the simplest facts, the abuse of symbolism and of special words which are used as an almost exclusive mode of expression."

Several other very elaborate works have been published on the subject of degeneracy. One of the better known of these perhaps is that of Max Nordau on "De-

generation" (1894). The book of Grasset[6] on the "Demifous et Demiresponables" has been translated into English and constitutes one of our most valuable contributions on this subject. Grasset credits Trélat with making the first comprehensive study of the semi-insane in his "La Folie Lucide," etc., in 1861. His classification of these conditions included imbeciles, the feebleminded, satyrists, nymphomaniacs, monomaniacs, erotomaniacs, jealous individuals, dipsomaniacs, spendthrifts, adventurers, the conceited or boastful, evildoers, kleptomaniacs, suicides and the inert and lucid manias. Grasset gives some interesting illustrations of the psychopathic traits of various men of genius. Tolstoï fell sixteen feet as a result of attempting to fly when eight years old, and whipped himself with ropes to become accustomed to pain. In school he chose a course in Oriental languages because everyone else was interested in law. Not being able to finish a college career in two years, he decided to go to a desert and live a purely animal life. It was necessary for him to resort to devices of various kinds to prevent suicide. Rousseau was at various times a clockmaker, music master, painter and servant in addition to studying medicine, music, theology, and botany. He dedicated a pamphlet "to all Frenchmen who were friends of justice" and distributed it on the streets. One of his acts was to write a letter "to God Almighty" and place it under the altar of Notre Dame. Persecutory ideas were entertained by him for years. Emile Zola was evidently a psychasthenic as well as a psychopath. He counted the gas jets on the street, the numbers on the doors, and the cabs passing by. These were added together. "For a long time the multiples of three seemed to him of good omen, then the multiples of seven were

6. Grasset, Joseph: The Semi-Insane and the Semi-Responsible. Translated by Smith Ely Jelliffe. 1907.

reassuring." "For a long time he was afraid he would not succeed in any proceeding on which he was about to enter if he did not leave the house with his left foot first." Balzac had an ambulatory mania and could not be found when called for military service. It is said that on one occasion "when he had put on a handsome new dressing gown he wanted to go out into the street with it on with a lamp in his hand to excite the admiration of the public." His father is said to have stayed in bed for twenty years without any reason for so doing, suddenly resuming his former mode of life at the end of that time. Schopenhauer broke a hotel proprietor's arm because he heard him talking outside of his room. He refused to pay a legitimate account because his name was spelled with two p's instead of one, on the bill. He often burned his beard instead of shaving and wrote his notes in Greek, Latin and Sanskrit for fear someone would read them. In his will he left all of his possessions to soldiers and to his dog. Goethe alternated between great joy and extreme depression and had unjustifiable attacks of anger. Frederick II had such a dislike for changing his coat that he had only two or three during the course of his life. When Schiller wanted to meditate he had a habit of putting his feet on ice and sniffing the aroma of fermenting apples. Nordau says "that Richard Wagner is accused of having a greater degree of degeneracy than all the degenerates that we have thus far seen put together." Mozart played the harpsichord at three years of age, composed concertos at five and made a concert tour at the age of six. He was extremely nervous and fell in love at fifteen with a girl of twenty-five. In the last months of his life he was obsessed with the idea that he had to prepare his own funeral mass. Lombroso's theory is that "genius is a true degenerative psychosis, belonging to the group of moral insanities which may temporarily spring from other psychoses and take their form,

but always conserving certain special characteristics which distinguish it from the others." Although his conclusions may not be warranted it must be admitted that many men of genius have been psychopaths.

Kraepelin[7] in discussing the influence of heredity on psychoses and personalities, says, "Hence we may, perhaps, discriminate between congenital states of disease and morbid personalities, according as the disturbances are apparently the expression of the morbid conditions of past generations, or seem to be purely personal abnormalities, although it is certainly impossible to make any sharp distinction." In 1915, in the fourth volume of his eighth edition, Kraepelin devoted nearly one hundred and fifty pages to the subject of psychopathic personalities. These he divides into the excitable, the unstable, the impulsive, the eccentric, the liars and swindlers, the antisocial or enemies of society, and the quarrelsome.

A study of the "excitable" psychopaths in Kraepelin's[8] clinic showed the intellectual standard of these individuals to be above the average. Apprehension and judgment were unimpaired even when mental inferiority was not entirely lacking. Some complained of poor memory or absentmindedness, others of a feeling of fatigue. A definite mental activity was noted, usually of a happy mood, but occasionally with depressive tendencies. The characteristic feature was an emotional excitement, associated often with violent rages, without any adequate reason. The emotional reaction changed quickly to one of despair, anxiety, irritability or inaccessibility. The mood in a large number of cases was depressed and tearful, while others were cheerful and elated, laughing and joking, or erotic. Often without any

7. Kraepelin, E.: Clinical Psychiatry. Translated by Thomas Johnstone. 1906.
8. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 4, 1915.

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apparent cause, irritability, pessimism, unsociability, weariness of life and thoughts of suicide appeared—more particularly during menstrual periods. The emotional state as a rule was kind, affable, good-natured, tractable, often religious, sensitive or sympathetic. The patients are often spoken of as well-liked, industrious, honest and substantial citizens. Some are timid, bashful or gloomy in disposition. Others are conceited, overbearing, tyrannical, rude, unsociable and quarrelsome. Many are childish, foolish or eccentric, highstrung and affected or untruthful. Some are unsteady, restless and overoccupied, full of schemes, rash, talkative, gossiping, and assuming striking mannerisms. Occasionally they are disinclined to any regular occupation, neglect their work, loaf around and are supported by their relatives. In sixty-two per cent of these cases the patients were brought to the clinic on account of suicidal tendencies. This was due to reduced circumstances in nearly fifty per cent of the men and in seventy-one per cent of the women. In the men marital troubles and love affairs were more common; sometimes loss of position, or death in the family, etc. Spurious attempts at suicide of a theatrical type were frequently reported. Next to suicidal inclinations as a cause for being brought to the clinic there were assaults, attacks of rage and outbursts of despair. In any stress or anger over a disagreeable occurrence these individuals are likely to become abusive, shout, scream, run around, strike the head against the wall, tear their clothes off, pull out their hair, etc. Some rush around all night in the streets in a senseless rage, improperly clothed. Occasionally they attack others unjustifiably and for no apparent reason. They are exceedingly susceptible to alcohol. During their excitements, consciousness may be clouded. Afterwards they say they were confused, not themselves, in a dream as it were, etc. Some have no recollection whatever as to what was

done. These excitements rarely last more than a few hours. Thirty-two per cent of the men and less than ten per cent of the women were convicted of crime, usually for disturbing the peace, or criminal assaults, but occasionally for much more serious offenses. As a rule alcohol is a factor in these cases. The relations between the sexes are characterized by jealousy and quarreling. The women are particularly likely to have delusions of infidelity. Genuine hysterical attacks occur in a certain number of cases. They often see visions and may have dizzy spells or syncopes. Somnambulism may occur. Nervous symptoms often appear—headaches, unpleasant dreams, palpitations, tremors, increased reflexes, tics, etc. The excitable cases constituted nearly one-third of the psychopaths admitted at Kraepelin's clinic. Sixty per cent of these were women. The majority of cases were between fifteen and twenty-five years of age. Heredity appeared to be a factor in forty-seven per cent and many showed physical defects. Fifty per cent of the men were intemperate.

The "unstable" psychopaths are characterized by a dominating weakness of the will. In nearly one-half of the cases the intellectual endowment is normal, some having a surprising power of comprehension and ability to take up new things, with accurate observation of their surroundings and keen discrimination. These persons have no great persistence and do not exert themselves, are inattentive, tire easily and are distractible. They never go into things deeply and have only a superficial knowledge of events. They learn readily and forget quickly. The memory is poor and unreliable. The imagination is usually very active, with a tendency to exaggerate, dream of the impossible and relate great stories. There is an inclination to boast and fabricate, telling of wonderful but wholly imaginary deeds and accomplishments. They often represent themselves to be important personages.

Some show artistic talent, write plays or phantastic poetry and discuss literary and dramatic problems. They are strongly inclined to become actors. The higher intellectual development is uniformly defective. Comprehension is not clear and judgment is immature and short-sighted. Their interests are devoted to frivolous matters without much attention to more important questions. They sometimes show great prospects in school but do not fulfill them later. The mood is cheerful and conceited, with a very high opinion of themselves and great ambitions. They blame their relatives for their lack of success and claim they are not understood or appreciated. Sometimes the emotional trend is more sad and gloomy. They complain of being unlucky, everything goes wrong. Occasionally anxieties appear, with a feeling of oppression, fear of being alone, of mental troubles or suicide. These feelings are, however, superficial in character, usually disappearing in a short time, to be followed by excitement, outbursts of anger or anxiety. They are often quarrelsome. The characteristic disturbance, however, is that of the will. They are entirely lacking in the capacity to stick to any one occupation. They are not punctual, are interfered with in innumerable ways and often change their work, looking for something more suitable. Hypochondriacal notions hamper their activities. Senseless journeys and trips are often undertaken. Some become vagabonds and tramps. They are much inclined to bad company and resort to immoderate use of tea, coffee, drugs and alcohol. Sixty-four per cent of Kraepelin's male cases and twenty per cent of the women were intemperate. The sexual habits are very often irregular and venereal diseases to be expected. Kraepelin found either gonorrhea or syphilis in twenty-two per cent of the women examined. Some exhibited homosexual tendencies. Many become spendthrifts, making extravagant and foolish purchases. They are inclined to

speculate unwisely. Fifty-four per cent of the men and nearly a third of the women as a result of their moral deterioration come into conflict with the courts on account of thefts, assaults, quarrels, vagrancy, etc. Suicidal tendencies were shown in forty-eight per cent of the men and sixty-five per cent of the women in Kraepelin's clinic. In many cases these were induced by alcoholism, in other instances by family quarrels, etc. Often the reasons given were foolish. Hysterical attacks appear in a certain percentage of cases in the women. Some had hallucinations and confusional attacks or syncopes. Tremors, headaches, increased reflexes and other neurological symptoms occasionally appeared. The "unstable" group included about one-fifth of the psychopaths observed by Kraepelin. Thirty-six per cent of these were women. The majority of those admitted were between the ages of fifteen and twenty-five. Heredity was a factor in forty-nine per cent of the cases.

The "impulsive" psychopaths are characterized by a domination of the conduct by emotional impulses. The intellectual makeup of these individuals is usually good. They often have a special bent for art, music, poetry, etc. They frequently show a considerable mental activity and versatility. They express themselves well, make witty remarks and appear brilliant, although they may complain of absentmindedness or fatigability. They are always conceited, born to greater things and have a great future. There is an almost unbounded egotism in some cases. The emotional tone is good-natured, easygoing and accessible. Many are sensitive and visionary; others obstinate, inconsiderate, pretentious or quarrelsome. The mood is usually high-spirited and confident but variable. The patients are often depressed and hopeless, complaining of their luck. At other times they are sullen, surly, irritable and faultfinding. Many exhibit suicidal tendencies. An emotional irritability is exceedingly common,

with violent outbursts of anger. Often they refuse to associate with others for a time and will speak to no one. The three common types are the spendthrift, the wanderer and the dipsomaniac. The spendthrifts usually indulge in alcohol and naturally soon contract enormous debts. They frequently have little insight into their condition or blame someone else for it. Many become wanderers and go aimlessly from one place to another—wherever their inclination leads them. The memory for these events is good. Some inadequate reason is always offered. These wanderers usually are children between the ages of ten and fifteen. The impulsive alcoholics may have attacks very rarely, sometimes only once a year. Debauches are preceded by restless and moody conduct. After constant drinking for days or weeks they sometimes have suicidal impulses. Sexual excitements may occur. They always show psychopathic traits between attacks. They are unsteady, unreliable, make sudden resolutions, change their occupations and residence and lead a wild existence with surprising adventures. Some have hysterical attacks, fainting spells, or even convulsions. The impulsive psychopaths constituted only two or three per cent of Kraepelin's cases. Practically all were over twenty-five years of age. There was a hereditary taint in seventy-one per cent of the cases.

The "eccentric" psychopaths are characterized by a lack of uniformity and consistency in the mental makeup. The intellectual endowment of these individuals is usually normal. They are often absentminded, forgetful and show a variation in productivity. Some are artists or devote themselves to inventions. Judgment is impaired and reasoning becomes distorted and onesided. There is a tendency towards exaggeration and extravagance in their viewpoints, with a leaning towards queer notions. They are often quickwitted, versatile and write long and wordy documents. Their mode of expression is bombas-

tic and labored, and the content of speech or writing, verbose, desultory, flighty and full of meaningless expressions. They show a certain shrewdness and cunning, dissimulate, resort to all kinds of evasions, and are conspicuous in their conduct. Occasionally there is a tendency towards delusional ideas of a mild form. As a rule the mood is cheerful, although often depressed, suspicious or irritable. They are opinionated, boastful and better than others. Usually there is an emotional excitability. The patients are sensitive and irritated by small things, scold and complain. Sometimes they are sentimental and dreamy, with extravagant language. They often take sudden dislikes to brothers, sisters or other members of the family. They are capricious, quarrelsome, and faultfinding. Their conduct is aimless, contrary and incomprehensible. They lose all capacity for judgment of real conditions. They cannot proceed in any orderly way in things which they are really fitted for. They do not stick to anything long, changing plans and occupations frequently. They often go about at night talking, arguing and drinking. It is not unusual for them to quarrel with their wives or even commit assaults. The majority of these eccentric psychopaths were men over thirty-five and of degenerate families. This group constitutes only a small number of cases.

The "liars and swindlers" are characterized by an excitability of the imaginative faculties and a variable and uncertain will power. At first these individuals are likely to appear as unusually gifted persons. They are good-natured, present an excellent appearance and are apparently well informed on almost all subjects. They have a faculty for quoting foreign languages and sometimes are familiar with many tongues. Often they are brilliant conversationalists. On investigation their actual knowledge is found to be very superficial. They are inclined to art, poetry and literature. Many become inter-

ested in hypnotism or spiritualism. They are inclined to join religious sects or attach themselves to the Salvation Army. These individuals learn quickly but do not stick to things long. Their mental powers are not orderly or consistent. They have an extraordinary imagination but accomplish nothing. They are liars from birth, the falsifications usually being entirely useless. Many are anonymous letter writers. They are often unable to discriminate, themselves, between the true and the false in their own stories. These fabrications appear to be an emotional product, the imaginary occurrence practically always relating to the individual himself. They boast of their superiority in literary and scientific accomplishments and claim to be theologians, mathematicians, jurists, chemists, etc. In their imaginations and fabrications the patients always better themselves. In many instances they assume pretentious titles, represent themselves as counts, princes, etc. Sometimes they strongly suggest paranoia. In a small number of cases self-accusations appear and they confess to all kinds of imaginary crimes. As a rule they are elated and optimistic, but often affected and theatrical. Occasionally suicidal attempts are made. At times general depressions or anxious states appear. Some are coarse and deceitful. They are usually uncertain and capricious in everything. Some become spendthrifts. They are naturally cheats and swindlers; occasionally thieves. The swindling schemes resorted to are innumerable. The use of false names and assuming of uniforms and titles of various kinds is the most common. They make purchases of all kinds without any ability to pay or any intention of doing so. Many refuse to pay bills without any excuse whatever. Others attempt to marry rich women by deceitful means and misrepresentations. Some practice medicine without a license; others claim damages for imaginary injuries. Sexual offenses are common. If arrested they

are often inclined to claim amnesia for the period of time when the act was committed. They occasionally have genuine psychoses and hysterical attacks. These simulate various diseases. The group of liars and swindlers constituted from six to seven per cent of the psychopaths in Kraepelin's clinic. Seventy-one per cent of the men were accused of crimes. The majority of cases were under twenty-five years of age. Heredity was a very important factor.

The "antisocial" psychopaths or enemies of society are characterized by a blunting of the moral elements of their makeup and a lack of adjustment to their environment. Kraepelin found that forty per cent of his cases were persons who had done well in school. They have a strong dislike for regular occupations and avoid them in every possible way. Their behavior is variable, with a tendency to be industrious occasionally and more often lazy. Frequently they appear queer, abstracted, inattentive, dreamy, sleepy or dull. When at their best they are not bright mentally and have no ambition or far reaching interest. They learn quickly and forget as rapidly. Their store of knowledge is very limited. They have no capacity for going into things thoroughly and cannot acquire a higher education. They are lacking in judgment, foresight and discrimination. Many have a weakness for cheap stories of adventure, pictures of crime, etc. In expression they are usually quick as well as verbose. A characteristic is their lack of truthfulness. They are liars and braggarts. The mood is usually cheerful and confident; sometimes arrogant, surly, moody, irritable and occasionally depressed or anxious. They change unexpectedly from one mood to the other. Irritability, with outbursts of anger, is common. They often become threatening and destructive. Eighteen per cent of Kraepelin's cases attempted suicide. At least one-third of these were theatrical attempts on account of fear

of punishment. Childish vanity and conceit is a very common symptom, with boastful tendencies. A prominent feature is the lack of any deep emotional reactions. They do not react normally and properly to their surroundings. Another characteristic defect is their entire lack of sympathy for anyone else. They are likely to be cruel to animals as well as persons. They show little affection for parents, children or relatives and are lacking in a sense of decency and personal cleanliness. As children they are exceedingly troublesome in school. Some have to go to custodial institutions for care. Many are truants at school and run away from home, becoming wanderers and vagabonds. They are inclined to sexual excitement, irregularities and crimes of various sorts. Seventy per cent of Kraepelin's cases were thieves, beginning to steal as children; twenty per cent were embezzlers and twelve per cent guilty of fraud or forgery. Practically every variety of crime was represented. They exhibit an extraordinary tendency to revert to criminal habits. Prison life makes some submissive but starts other in a war against society. They often attempt violence or make passive resistance to the law. They occasionally develop hypochondriacal tendencies. Friendly advances are greeted with mistrust. Some are stubborn, sulky, unrepentant and have nothing to say, or lie and explain by putting the blame on others. Thus an opposition to all organized society develops. They often look upon themselves as martyrs. Others take the situation lightly and minimize the gravity of their position. Some seem to really see the error of their ways. The antisocial individuals sooner or later, like other psychopaths, are very prone to hysterical attacks, fainting spells, or even convulsions. Anesthesias and hyperesthesias may be noted. Some patients complain of headache, disturbed sleep, dreams, etc. The antisocial in Kraepelin's clinic constituted less than ten per cent of the psychopaths, of which

seventy per cent were men. Half of the women were prostitutes. Over eighty per cent of the cases were under twenty years of age.

The intellectual makeup of the "quarrelsome" psychopath is usually fairly good. As a rule these persons show a narrowing of the intellectual sphere, with, however, a well-defined shrewdness which enables them to take advantage of others. Some show a tendency to pedantry and hair-splitting arguments. Memory is good but distorted by an emotional coloring. Judgment is warped and unreliable. They are credulous and accept statements without proof, but they look with suspicion on anything not in accord with their own ideas. The influence of these factors leads to an emotional excitability. They are always passionate, sensitive individuals who become excited over trivial matters. This is complicated by a marked self-confidence, minimizing their own failings. Quarrels are the inevitable consequence. Everything is exaggerated in importance. The conclusion is reached that the neighbors and others are all organized against them. Sometimes the feeling of enmity is transferred from one individual to another. The patient is constantly in trouble with someone. They are almost invariably of the male sex and usually of middle age or older when they come under observation.

For statistical purposes the differentiation of the psychopathic personalities has been described by the Association's committee as follows:—

"Under the designation of psychopathic personality is brought together a large group of pathological personalities whose abnormality of makeup is expressed mainly in the character and intensity of their emotional and volitional reactions. To meet the demands of current usage, the term for this group has been shortened from the older one "psychoses with constitutional psychopathic inferiority" with which it is synonymous. In-

dividuals with an intellectual defect (feeblemindedness) are not to be included in this group.

"Several of the preceding groups, in fact all of the so-called constitutional psychoses, manic-depressive, dementia praecox, paranoia, psychoneuroses, etc., may be considered as arising on a basis of psychopathic inferiority or constitution because the previous mental makeup in these conditions shows more or less clearly abnormalities in the emotional and volitional spheres. These reactions are apparently related to special forms of psychopathic makeup now fairly well differentiated, and the associated psychoses also have their own distinctive features.

"There remain, however, various other less well differentiated types of psychopathic personalities, and in these the psychotic reactions (psychoses) also differ from those already specified in the preceding groups.

"It is these less well differentiated types of emotional and volitional deviation which are to be designated, at least for statistical purposes, as psychopathic personality. The type of behavior disorder, the social reactions, the trends of interests, etc., which psychopathic personalities may show give special features to many cases, *e.g.*, criminal traits, moral deficiency, tramp life, sexual perversions and various temperamental peculiarities.

"The pronounced mental disturbances or psychoses which develop in psychopathic personalities and bring about their commitment are varied in their clinical form and are usually of an episodic character. Most frequent are attacks of irritability, excitement, depression, paranoid episodes, transient confused states, etc. True prison psychoses belong in this group.

"In accordance with the standpoint developed above, a psychopathic personality with a manic-depressive attack should be classed in the manic-depressive group, and

likewise a psychopathic personality with a schizophrenic psychosis should go in the dementia praecox group.

"Psychopathic personalities without an episodic mental attack or any psychotic symptoms should be placed in the *without psychosis* group under the appropriate subheading."

Unfortunately there are no statistics which show the incidence of psychopathic personalities in the community. A study of 70,987 first admissions to state hospitals shows that the psychoses associated with this condition constituted only 1.12 per cent of the total number. On the other hand, the reports of the Phipps Psychiatric Clinic show an admission rate for psychopaths of over six per cent during a five-year period. When they reach a state hospital it is usually owing to the development of manic-depressive insanity or some other well-defined psychosis. The important and troublesome cases from a social point of view are those that do not reach hospitals. A much larger percentage is to be found in institutions of the correctional and penal type. There is no greater problem today than the attitude of the state towards the psychopathic criminal. The influence of these individuals on the community at large is something that we have no means of estimating at the present time.

CHAPTER XVIII

THE PSYCHOSES WITH MENTAL DEFICIENCY

The literature of mental deficiency is almost as old as that of medicine. Imbecility was studied at some length by Plato and Galen and was recognized by Felix Plater, who has been accredited with the first classification of mental diseases known (seventeenth century). Fitzherbert[1] in his "Natura Brevium" in 1652 included the following interesting definition of idiocy: "He that shall be said to be a sot and idiot from his birth, is such a person who cannot count or number twenty pence, nor tell who was his father or mother, nor how old he is, so as it may appear that he hath no understanding or reason what shall be for his profit, or what for his loss; but, if he have sufficient understanding to know and understand his letters, and to read by teaching or information, then it seems he is not an idiot." One of the first medical writers to discuss mental defects at any length was Esquirol. In differentiating them from mental diseases he said: "Idiocy is not a disease, but a condition in which the intellectual faculties are never manifested; or have never been developed sufficiently to enable the idiot to acquire such an amount of knowledge as persons of his own age, and placed in similar circumstances with himself, are capable of receiving. Idiocy commences with life, or at that age which precedes the development of the intellectual and affective faculties, which are from the first, what they are doomed to be during the whole period of existence." . . . "A man in a state of Dementia is

1. Bucknill, J. C., and Tuke, D. Hack: Psychological Medicine. Fourth edition. 1879.

deprived of advantages which he formerly enjoyed. He was a rich man, who has become poor. The idiot, on the contrary, has always been in a state of want and misery." An elaborate treatise on the subject of cretinism was published by Fodéré in 1792.

Tredgold,[2] in discussing the etiology of mental deficiency, divides the causes into factors indicative of, or producing, a variation of the germ plasm and those acting directly upon the offspring. The former include neuropathic inheritance, alcoholism, tuberculosis, syphilis, consanguinity and the age of the parents. Among the latter are abnormal mental and physical conditions of the mother during pregnancy, or injury to the fœtus; abnormalities of labor, primogeniture and premature delivery; and after birth—traumatic, toxic, convulsive and nutritional factors. He found neuropathic inheritance in over eighty per cent of the cases studied. In 64.5 per cent the heredity took the form of mental defects, insanity or epilepsy, and in eighteen per cent paralysis, cerebral hemorrhage, neuroses of various kinds, or psychoses. There was a history of alcoholism in 46.5 per cent of the series investigated. Tuberculosis occurred in the families of thirty-four per cent, syphilis in 2.5 per cent, consanguinity in five per cent, and a marked disparity in the ages of the parents in four per cent. Factors acting directly on the offspring, either before, during or after birth, were found to be present in sixty-five per cent. Goddard[3] in a study of 327 cases found a history of inherited mental deficiency in fifty-four per cent, probable heredity in 11.3 per cent, neuropathic ancestry in twelve per cent, accidents of various kinds in nineteen per cent, and no ascertainable cause of any kind in 2.6 per cent of the total number.

The definition of a feebleminded person, proposed by

2. Tredgold, A. F.: Mental Deficiency, 1915.
3. Goddard, H. H.: Feeblemindedness. 1914.

the Royal College of Physicians of London, and subsequently adopted by the English Royal Commission, reads as follows:—"One who is capable of earning a living under favorable circumstances, but is incapable, from mental defect existing from birth, or from an early age, (a) of competing on equal terms with his normal fellows; or (b) of managing himself and his affairs with ordinary prudence." The English Mental Deficiency Act of 1913 included the following definition:—"Persons in whose case there exists from birth or from an early age mental defectiveness not amounting to imbecility, yet so pronounced that they require care, supervision, and control for their own protection or for the protection of others, or, in the case of children, that they, by reason of such defectiveness, appear to be permanently incapable of receiving proper benefit from the instruction in ordinary schools." It will be noted that imbeciles and idiots do not come within the scope of these definitions. This is due to the fact that the term feeblemindedness as used in England includes only the High Grade Amentia of Tredgold or the Morons as defined by Goddard. The classification of the latter is as follows:

1. High Grade Morons—Those that can do fairly complicated work, with only occasional or no supervision, run simple machinery or take care of animals, but are unable to plan.

2. Middle Grade—Those capable of doing routine institution work only.

3. Low Grade—Those who are only capable of running errands, doing light work, making beds, scrubbing or caring for rooms—if there is no great complexity of furniture.

Tredgold describes imbecility as Medium Grade Amentia and idiocy as Low Grade Amentia.

The Mental Deficiency Act of England defines idiots as "persons so deeply defective in mind from birth, or

from an early age, as to be unable to guard themselves against common physical dangers." It also refers to moral imbeciles as "persons who from an early age display some permanent mental defect coupled with strong vicious or criminal propensities on which punishment has had little or no deterrent effect." The imbecile as defined by the Royal Commission of England is "one who by reason of mental defect existing from birth or from an early age is incapable of earning his own living, but is capable of guarding himself against common physical dangers."

Tredgold classifies either feeblemindedness, imbecility or idiocy if due to pathological germinal variations (caused by alcoholism, tuberculosis, syphilis, etc., and manifested by amentia, insanity, epilepsy, etc.) as being either simple, microcephalic, or Mongolian. He describes those which represent somatic modifications due to gross cerebral lesions as syphilitic, amaurotic, hydrocephalic, porencephalic, sclerotic, paralytic and other toxic, inflammatory or vascular forms. The somatic modifications due to defective cerebral nutrition he divides into epilepsy, cretinism, nutritional forms and isolation (sense deprivation).

The classification of mental defects used by Fernald at the Massachusetts School for the Feebleminded and based on mental ages is as follows:—Idiot,—low grade, less than one year; middle grade, one year or more; high grade, two years. Imbecile,—low grade, three and four years; middle grade, five years; high grade, six and seven years. Moron,—low grade, eight and nine years; middle grade, ten years; high grade, eleven and twelve years. Fernald calls attention to the fact that the diagnosis cannot be based on the mental age alone. The intelligence quotient must be taken into consideration. This is determined by dividing the mental by the physical age. It is a comparison of the average intelligence

of the child, using the normal as a standard. The diagnosis cannot be definitely made until the age of sixteen, or until the probable mental age at sixteen is determined.

The following definitions are used by the American Association for the Study of the Feebleminded:—"An idiot is a mentally defective person having a mental age of not more than 35 months, or, if a child, an intelligence quotient of less than 25. An imbecile is a mentally defective person having a mental age between 36 months and 83 months inclusive, or, if a child, an intelligence quotient between 25 and 49. A moron is a mentally defective person having a mental age between 84 months and 144 months inclusive, or, if a child, an intelligence quotient between 50 and 74."

Tredgold expresses the opinion that "the insanity of the feebleminded and high grade imbeciles does not, on the whole, differ from that occurring in ordinary persons." In sixty-two cases under his observation he found the following forms:—Mania, thirty-two; melancholia, sixteen; alternating mania and melancholia, six; stupor, one; delusional insanity, one; and juvenile general paresis, six. He also speaks of epileptic insanity and terminal dementia in his cases.

Kraepelin[4] describes certain characteristics as applying very generally to the mental deficiency group which he prefers to speak of as "Oligophrenia." Sense perception is often interfered with by defective vision, opacities of the lens and cornea, errors of refraction, optic atrophy or deafness. The apprehension of external impressions may be prevented to a certain extent also by disturbances of attention. Only the sharper and stronger stimuli reach the patients as a rule and these impressions are retarded. Many occurrences escape their notice entirely and their sense perceptions are poor and scanty at best. Disturbances of attention are shown by the atti-

4. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 4, 1915.

tude, facial expression, carriage and conduct, so that they have an appearance of apathy and indifference when their real feelings are entirely different. An increased effort cannot be produced by an exertion of the will, nor can the fatigue which such attempts result in, be overcome. Repeated tests of various kinds show a marked decrease in the power of apprehension. In profound idiocy it is difficult to determine whether any impression can be made on the sense organs or not. When the patients react to a severe pin prick it is only after a considerable delay, apprehension and attention being equally impaired. Schlesinger found fifty-five per cent of his cases lacking in interest, thirty-five per cent were distractible and ten per cent showed an increased fatigability. An evidence of the lack of attention is the fact that the weakminded as a rule are not susceptible to hypnotism.

The apprehension of colors, form and dimensions is uncertain and difficult. The patients learn to distinguish colors very late usually. They can form no clear conception as to the outlines, surface or contents of objects. They have considerable difficulty in putting syllables and sentences together. They recognize the details but not the significance of pictures. In the elaboration of impressions they are unable to distinguish between the real and the accidental or nonessential. This gives rise to a confusion of ideas. Changes in size, color, shape, etc, always annoy them. Their lack of observation and discrimination explains the absence of timidity in the presence of strangers which characterizes normal children. There is also a defective apprehension of auditory impressions and they are unable to understand very familiar sounds. Ley showed that they were often unable to identify letters they heard pronounced. There is a marked inability to grasp the meaning of ordinary words. The sense of taste and smell is comparatively much less impaired. Very defective children object at once to quinine

when it is placed on the tongue. Nevertheless, many do not notice unpleasant odors or even the taste of excreta, etc.,—things which are exceedingly offensive to normal individuals,—and are entirely indifferent as to the quality of their food. Sensory disturbances of the skin are not very marked. In a series of esthesiometric tests, however, Ley obtained unsatisfactory "automatic" responses in eighteen cases, meaningless answers in forty-eight, and intelligent responses in eleven of 127 mental defectives examined. The application of the sense of touch in recognizing articles is acquired with difficulty. Pain sensations are somewhat diminished also and some defectives are apparently insensible to blows, etc. That the sense of position and location is not well developed is often shown by coarse, awkward movements. The sense of weight and motion is lacking. Demoor found that the feebleminded usually pointed out the larger article as being the heavier even when lighter in weight. Claparede found this characteristic present in one per cent of ninety-seven pupils rejected as a result of mental tests, in eight per cent of the mildly weakminded, and in sixty-five per cent of the markedly defective cases. Memory is always involved. Superficial impressions are easily lost. Johnson subjected seventy-two defective children to retention tests. Seventy could correctly repeat only three numbers; sixty-six only four; fifty-one only five; twenty-seven only six; fourteen only seven, and four only eight. Ranchburg's tests showed them to be very susceptible to suggestion. Some defectives, on the other hand, have a peculiar faculty for remembering dates, numbers, performing feats of arithmetic, etc. The memory defect is usually shown more especially by the inability to take advantage of the experience of the past. The patients learn with difficulty, read little and forget what they are taught. The events of life leave few traces and make only a superficial impression on them. The intellectual

horizon for this reason is very limited. Their thoughts are confined largely to the matter of clothing, food, etc.

The fundamental obstacle in the mental progress of the defectives is the inadequate elaboration of general impressions and conceptions. There is an absence of any understanding of the importance of time, events, numbers, etc. They often have no idea whatever as to the significance of money. Dates mean nothing usually and they are often unable to determine the time of day. The train of thought as shown by tests made by Buccola is delayed. Their poverty of thought is shown by the fact that defective children can think of only about one-fourth as many words during a given time as suggest themselves to the normal child—a test suggested by Binet. Tests reported by Sommer, Nathan, Binet and others show a marked delay in association time and an impoverished mental capacity. They frequently repeat the test word or give entirely meaningless replies. Associations do not become fixed on repeated tests as they do with normal individuals (Wreschner). It is not easy for them to repeat numbers, the months of the year or days of the week backwards. They cannot supply omitted words or syllables in sentences (Ebbinghaus test). It is hard for them to assemble picture puzzles or pieces of cards. Revesz found that it was more difficult for them to learn to divide than to subtract or add. Multiplication he found to be most easily acquired. They did not do well in tests requiring any reason or judgment. They are entirely incapable of defining or explaining abstract conceptions of any kind. They cannot explain the meaning of fables and have no appreciation of irony. Nor can they correct the most obvious faults in test sentences. They have no insight into their own condition and no grasp on either past or present events. Their capacity for efficient occupation and employment is much diminished. Their ability to acquire an education is also limited. Of 286 cases

examined in school Schlesinger found only fifteen per cent to be industrious in their habits. Nine per cent failed in writing, eighteen in reading and twenty-four per cent in arithmetic tests.

The emotional life is also much impoverished and unstable. There is no sense of shame and no feeling of family pride or patriotism. There is often a tendency to commit criminal acts. As a rule the mood is indifferent and apathetic—in strange surroundings they are sometimes timid and anxious. Some feel ashamed of their speech defects and awkwardness. Others show a childish cheerfulness, or satisfaction and self-confidence. There is a tendency to uncontrollable laughter, attacks of anxiety, angry excitement, or childish despair with hysterical manifestations which disappear quickly. Usually the patients are inoffensive, manageable and well behaved, but easily susceptible to bad influences. Often they are queer, whimsical, capricious, obstinate and childish. Henneberg, who examined a large series of cases, described 33.8 per cent as anxious, timid, sensitive and inclined to weep; 15.7 per cent as apathetic, dreamy, sluggish and seclusive; 12.6 per cent as quiet, serious, good-natured, sociable and pleasant; 18.7 as active, cheerful, shallow, playful and talkative; and nineteen per cent as rude, malicious, obstinate, irritable and bad-tempered. The sexual life is sometimes undeveloped or may show actual perversions. Bonhöffer found six idiots and fifty-three feebleminded persons in an examination of 190 prostitutes. The volitional expressions of the defective are very largely impulsive. They act without reflection or regard to consequences and are easily induced to do improper acts. The inhibition of will is shown by the defective control of ordinary movements in responding to commands. They are always slow in learning to walk. The childish inability to perform finer and more precise movements does not disappear later as it does in the

course of normal development. This is shown in their gait, awkward movements, etc. Kraepelin interprets the tendency to bedwetting as an evidence of volitional disturbance, also the stereotyped, rhythmical movements of the idiot. Laser found that forty per cent of his cases had the habit of biting the finger nails.

Dependent upon the inhibition of volitional impulses, two clinical groups of the feebleminded have been described by Kraepelin,—the excitable and the apathetic or dull. The excited forms are much more common. Schlesinger, however, found thirty-one per cent of his cases of the apathetic variety; twenty-nine per cent were excitable; twenty-eight per cent had simple mental defects, and the remainder showed antisocial tendencies. In the apathetic or dull form there is a marked disturbance of the attention; the patient takes no interest in his surroundings, appears sluggish, awkward, emotionally dull, and devoid of any voluntary impulse, often doing only what he is urged to do. They are usually good-natured, contented, and do simple work under direction, in a slow and mechanical way. The lighter grades are of a dull, weak-willed, readily influenced type. They are timid, unconcerned and agreeable. The excitable variety, on the other hand, show a purposeless, mercurial variability. Their attention is easily distracted from one thing to another. They cannot sit still, are restless and constantly on the go. Occasionally they are violent.

The defective control of motor impulses by the will is also shown in defectives by the disturbance of speech and writing. Crailsheimer found speech disturbances in 36.3 per cent of his cases, Schlesinger in thirty per cent, and Leubuscher in fifty per cent. They can often hear although mute, sometimes recovering their speech during an attack of excitement. Ley reported stammering in twelve per cent of his cases and stuttering in thirteen per cent. Agrammatism and akataphasia sometimes occur.

Word-blindness is also referred to as a symptom and various disturbances of reading and writing have been observed.

According to Kraepelin, the important developmental landmarks in the life of the young are the acquisition of speech (one year), the beginning of the school life (six years), the appearance (fourteen years) and the completion (eighteen years) of sexual development. The first and second periods represent the relative levels of low and high grade idiocy, the third imbecility and the fourth feeblemindedness. This classification is somewhat similar to that of Weygandt. The education ordinarily acquired by the higher grade of the feebleminded is somewhat limited. They may even excel in certain occasional lines of work, for example, in music, art, etc. They are usually poor in mathematics and lack interest and application as a rule. Difficult apprehension and mental fatigability are to be expected. They have to go over things repeatedly, as their memory is not good. Their education is often ample in some directions and very lacking in others. Their judgment is onesided, their viewpoint narrow and their worldly knowledge childish. What they acquire at school is soon forgotten. They take no interest in religion, politics or current events of importance, and very impractical ideas are expressed on all questions. The emotional manifestations vary. Some are agreeable, cheerful, tractable; others timid, tenderhearted, sensitive, slightly emotional or anxious. They are more likely to be obstinate, stubborn, unruly, rude, irritable, unsociable and violent-tempered. Some have periods of active excitement and become threatening, abusive and violent. Occasionally suicidal attempts are made, although they are usually not genuine. Some are addicted to sexual excesses, lying or swindling. Sexual perversions also occur in some cases. They are usually incapable of any continuous occupation and drift from one thing to an-

other. As a rule they have little conception of the value of money and spend it recklessly. They are very susceptible to alcoholism and often commit petty crimes. Occasionally hysterical manifestations—syncopes, seizures, etc.—appear. Clouded and confused states have been observed. Frequently impulsive tendencies are noted. In some instances psychopathic traits are very striking. Excitable, unstable, impulsive, quarrelsome and antisocial types appear as well as liars and swindlers. Periodical excitements and depressions suggest manic-depressive forms.

Considerable confusion has been occasioned by the relation thought by some to exist between mental deficiency and dementia praecox. Kraepelin [5] has spoken of an engrafted hebephrenia, as shown by the following quotation from his eighth edition:—"I made the suggestion a long time ago that certain, not very frequent, forms of idiocy with well developed mannerisms and stereotypies were an early expression of dementia praecox." He is of the opinion that "the affected manners of certain idiots, as well as the associated stereotypies of attitude and movement in addition to the negativistic impulses and the permanent obstinate inaccessibility to all attempts at approach, show no relation whatever to ordinary childish peculiarities and belong on the contrary to the well-known picture of dementia praecox." He interprets the "demenza precocissima" of Sante de Sanctis and the "dementia infantilis" of Heller as belonging to dementia praecox rather than the mental deficiency group. He further makes the suggestion that "weakmindedness existing from youth without focal symptoms, and later leading to deterioration, is as a rule to be looked upon as pfropfhebephrenia, if epilepsy and cerebral syphilis can be excluded, the former by the absence of seizures, the

5. Kraepelin, E.: Psychiatrie. Eighth edition. Vol. 3, 1913.

latter by the results of the Wassermann reaction." Engrafted hebephrenia or "pfropfhebephrenia" has been studied by various observers. After an analysis of ten cases Wasner reached the conclusion that feeblemindedness predisposes to dementia praecox. Weygandt and various other writers are not in accord with Kraepelin on this subject. It is, however, generally conceded that the occurrence of manic-depressive and other affective psychoses in mental defectives is not at all infrequent.

As special types Kraepelin described microcephalic varieties, the tuberous sclerosis of Hartdegen and Bourneville (1880), vascular and other cerebral defects, infantilismus, dysadenoid and other endocrine conditions, Mongolian idiocy, hydrocephalus, encephalitic forms, etc. Alzheimer, Hammarberg, and Bourneville have made pathological classifications of the mental deficiencies.

Psychoses which render the commitment of mental defectives to hospitals for mental diseases necessary are comparatively infrequent, as is shown by statistics. In the words of the statistical manual, "the most common mental disturbances are episodes of excitement or irritability, depressions, paranoid trends, hallucinatory attacks, etc." Cases diagnosed as showing manic-depressive psychoses or dementia praecox are not shown in the mental defective group. Three and forty-eight hundredths per cent of the admissions to the Massachusetts hospitals during 1919 were diagnosed as psychoses with mental deficiency. During a period of eight years the admission rate to the New York hospitals amounted to 2.8 per cent. The admissions to twenty-one institutions in other states constituted 4.33 per cent of the whole number reported. In 70,987 admissions to forty-eight hospitals in sixteen states the psychoses with mental deficiency amounted to 3.22 per cent of all first admissions.

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